PC GAMER®

ANNUAL

2022

PC GAMER

TOP 100

THE BEST GAMES YOU SHOULD PLAY TODAY

LEGENDS of PC GAMING

EIGHT CLASSICS THAT DEFINED THE PLATFORM

GENSHIN IMPACT

INSIDE THE PHENOMENON

QUAKE

CELEBRATING PRO GAMING

CRUSADER KINGS III

TRYING TO BE THE GOOD GUY

GTA V

EMBRACE THE CHAOS MOD

EXTRA LIFE

RED DEAD REDEMPTION II

MASS EFFECT

ASSASSIN'S CREED

& MORE!

Digital Edition

FUTURE

FIRST EDITION

"WE CELEBRATE THE DIVERSITY OF PC GAMING AS A PLATFORM"

PHIL SAVAGE
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This year
Got really good at *Destiny 2*, remained mediocre at *Apex Legends*.

Welcome to the latest edition of the PC Gamer Annual. In this special compilation, we've compiled the best games, features and Extra Life mischief from the magazine's last 13 issues. We celebrate the diversity of PC gaming as a platform in the latest version of our annual Top 100 list, but also address those areas where the medium can still improve. On page 40, we investigate crunch in videogame development, and speak to the devs who are trying to kill it for good. On page 62, we take you back in time and behind the scenes of *Quake*'s AFT, the first all-female pro-gaming tournament. And on page 84, we pay tribute to eight classics that changed PC gaming forever.

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TALK TO PC GAMER
Have your say! Email us at letters@pcgamer.com

The PC Gamer team

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This year
Bumped *Apex Legends* up the Top 100 thanks to its new Scottish Legend.

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This year
Went on a galaxy-wide sci-fi binge, stopping off at *KOTOR* and *Mass Effect*.

STEVEN MESSNER
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This year
Chatted to the devs behind *Genshin Impact* on their runaway success.

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This year
Spoke to the people that are trying to stop game development from ruining lives.

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This year
Thought *GTA* was too calm so booted up a little thing called the '*Chaos Mod*'.

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This year
Bribed the pope and dealt with some accidental adultery in *Crusader Kings III*.

JULIE MUNCY
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Curses
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This year
Valiantly shot herself in the face with a backwards gun in *Cursed Halo*.

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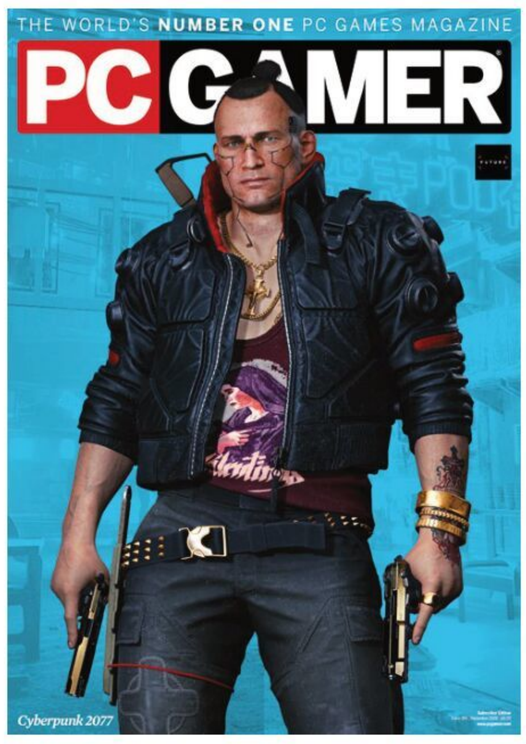

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PC GAMER

TOP 100

2021

There are a few guiding principles that we stick to when we put together this Top 100 list. For example, we're always clear that this isn't a ranking of the greatest PC games of all time, but rather the best ones to play right now. But the most important thing is that it should reflect us as a team, and who we are as PC gamers. With lots of new additions to our crew since last year, that means some big, exciting changes to our list. Enjoy!

PERSONAL PICK

Rich Stanton

BATMAN: ARKHAM KNIGHT

Six years old, and with a famously bad PC launch, but wow have the years been kind. The game looks stunning, plays amazingly well, and is packed with Bat-stuff. The most fun I've had with a singleplayer game this year, and the best superhero game ever made.

100 WARFRAME

RELEASED 2013 | **LAST POSITION** 68 ▼

Steven: *Warframe* has had some ups and downs over the last year, but it's still an innovative, strange, and absorbing MMO shooter unlike anything else on the PC. No other game comes close to doing what *Warframe* does – especially now that it has ship-to-ship space combat and a *Shadow of Mordor*-style Nemesis System. The amount of stuff to do in *Warframe* is mind-boggling. And with a major story expansion coming later this year, there's never been a better time to start playing.

99 HEARTHSTONE

RELEASED 2014 | **LAST POSITION** No change

Tim: *Hearthstone* retains its place thanks to Battlegrounds mode, which has surely overtaken Standard as the main reason to play. Blizzard is pumping resources into BGs, and (inevitably) rolling out paid cosmetics to keep the accountants happy, but that feels reasonable given how good BGs is. Building a lobby-dominating comp is like creating your own Rube Goldberg machine and letting it run riot. Even in defeat, it feels moreish – a stark contrast to the despair of the ladder experience.

98 EVE ONLINE

RELEASED 2003 | **LAST POSITION** 71 ▼

Steven: The space MMO has slipped down the rankings largely because of a series of controversies involving economic rebalancing and microtransactions that players are not happy about. Since its release in 2003, *EVE Online* has struggled to invent systems that both enable its cataclysmically large battles while keeping a level playing field for both sides. This isn't the first time *EVE Online* has landed in hot water with its players, and it won't be the last, but what's consistent throughout is the game's ability to spark intergalactic drama in its crucible of player-driven war.

Right now, *EVE Online* is in the midst of its most destructive conflict yet as two sides of the galaxy wage war on each other. Commanders have staged daring rescues, desperate last stands, and cunning ambushes. Meanwhile, the rest of the galaxy pulses and thrums to the rhythm of hundreds of smaller conflicts erupting every day. That sense of existing in a living, breathing ecosystem with other players is something no other MMO has, and your ability build a legacy in the ebb and flow of its player-driven empires is, to this day, remarkable. Even if *EVE*'s complicated controls and steep learning curve turn you away, you should still take every opportunity to read about each new (and bloody) chapter its players are writing.

PERSONAL PICK

Rachel Watts

IF FOUND...

If Found remains one of the best visual novels on PC. Its story of a young queer woman is both painfully beautiful yet gut-wrenching, and the way you wipe away each panel revealing the next fits perfectly in a story about erasing the past to make room for a new beginning.

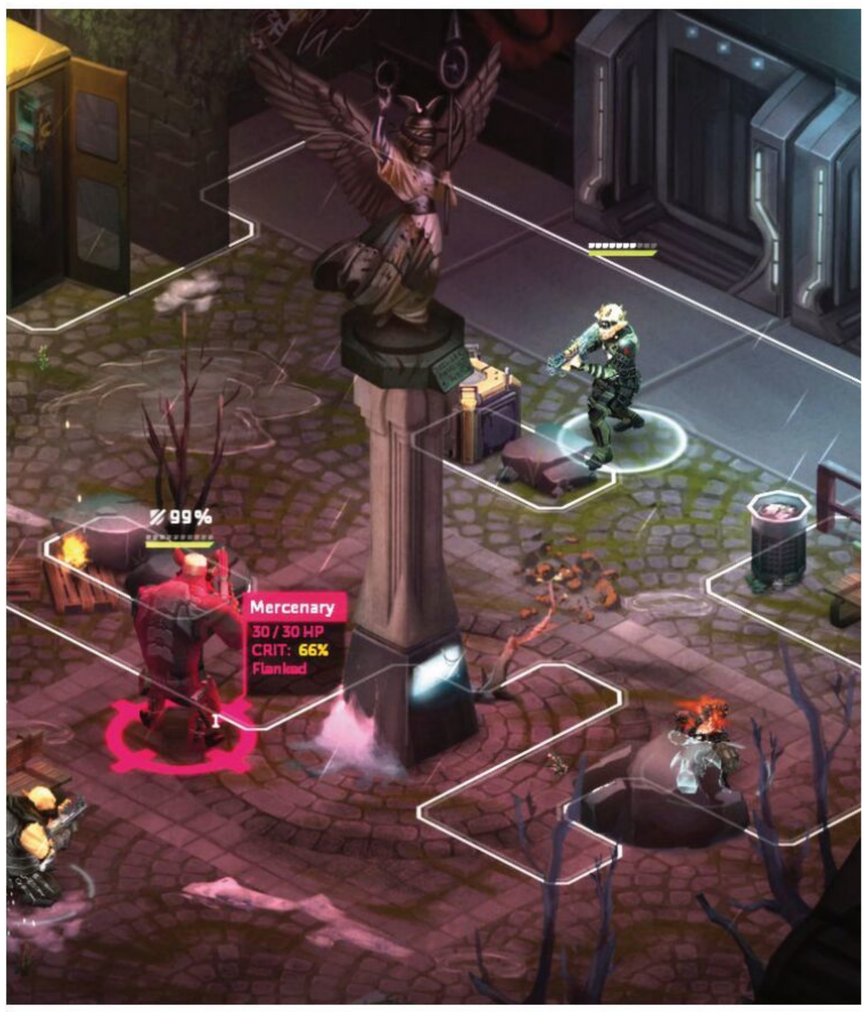
TOP 100 2021

97 WINGSPAN

RELEASED 2020 | **LAST POSITION** New

Rachel: The most charming board game out there, and that includes both the physical and virtual versions. It's an engine-building card game where you play as bird enthusiasts trying to attract birds to your wildlife preserve. Each card has a bird fact and an illustration that has been wonderfully animated in the digital version. Definitely one to play with friends who like a laid-back approach to competitive card games.

Wes: Bird facts! *Wingspan*'s theme really is delightful. Beneath that is just a great 'easy to learn, hard to master' strategy game, with tons of clever interplay between the different types of birds. My favourites are the predators, which can snatch other bird cards out of the deck for you to score points.



96 SHADOWRUN: DRAGONFALL

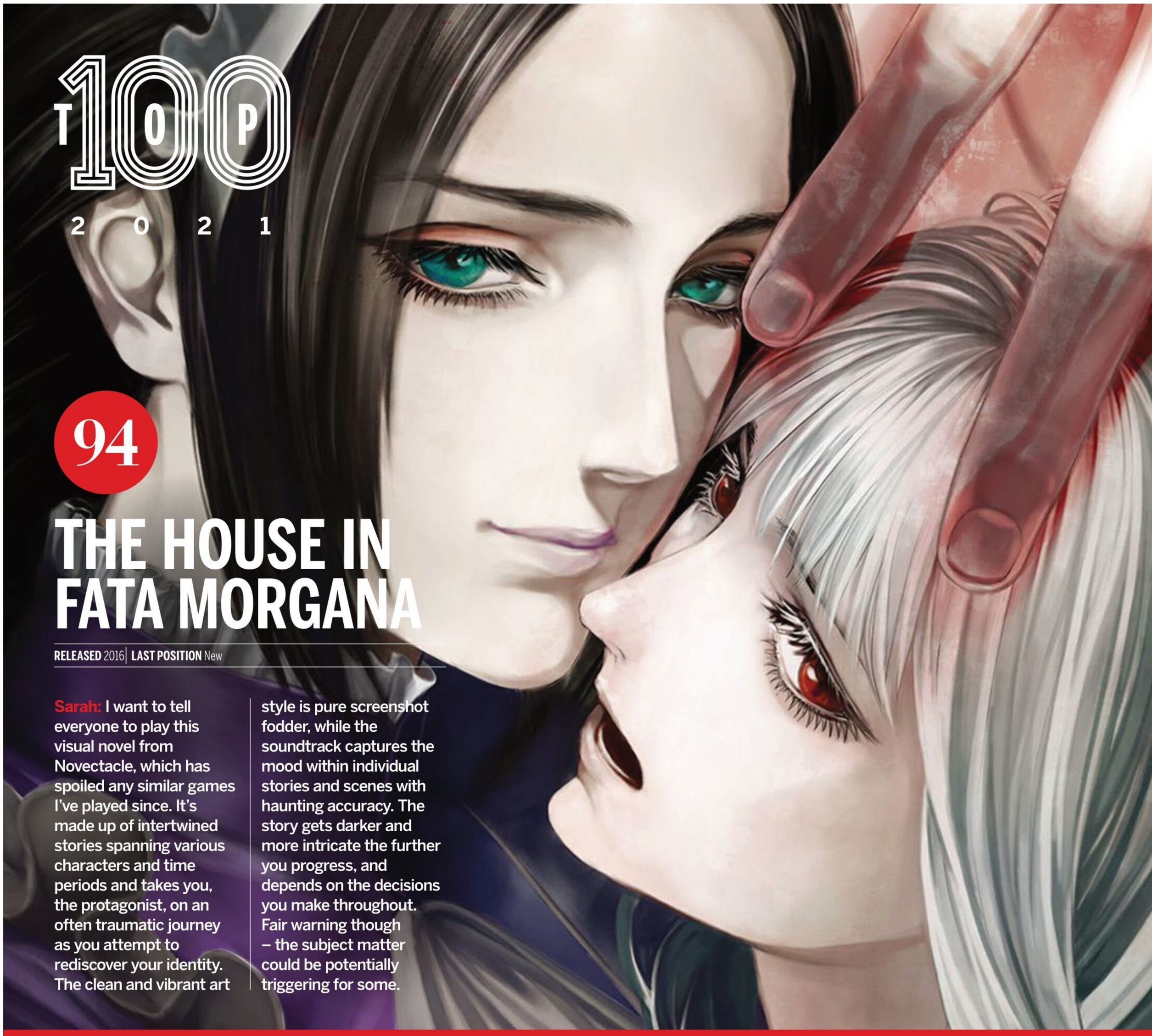
RELEASED 2014 | **LAST POSITION** Re-entry

Jody: I didn't expect to recommend the cyberpunk RPG with elves, but here we are. *Dragonfall* may have a setting where dragons give up hoarding gold to become megacorp CEOs hoarding stock options, where a dwarf hacker mastercrafts software like a smith forging magic axes, but it understands the genre like few others (shout-out to *Umurangi Generation* and *The Red Strings Club*). It's explicitly anti-authoritarian, an entire game about holding together an anarcho-state in Berlin. With elves. It's the best revivalist CRPG too. While not pushing the subgenre as far as *Divinity: Original Sin 2* – it lifts a chunk of plot directly from *Baldur's Gate 2* – it modernises the isometric RPG with *Mass Effect*-style companions and *XCOM*-inspired combat.

95 SHADOW TACTICS: BLADES OF THE SHOGUN

RELEASED 2016 | **LAST POSITION** 86 ▼

Fraser: *Desperados 3* is the newest tactics game from Mimimi Games, but 2016's *Shadow Tactics* remains my favourite thanks to the Edo setting and charismatic cast. It looks stunning, much more so than the Wild West, and by the end you won't want to say goodbye to your band of killer pals. And beyond that, it's still a superb, sneaky tactics game that encourages creativity, experimentation and, of course, save scumming. Bonus points for letting us use an adorable tanuki for murder.



94 THE HOUSE IN FATA MORGANA

RELEASED 2016 | **LAST POSITION** New

Sarah: I want to tell everyone to play this visual novel from Novectacle, which has spoiled any similar games I've played since. It's made up of intertwined stories spanning various characters and time periods and takes you, the protagonist, on an often traumatic journey as you attempt to rediscover your identity. The clean and vibrant art style is pure screenshot fodder, while the soundtrack captures the mood within individual stories and scenes with haunting accuracy. The story gets darker and more intricate the further you progress, and depends on the decisions you make throughout. Fair warning though – the subject matter could be potentially triggering for some.

93 VAMPIRE: THE MASQUERADE – BLOODLINES

RELEASED 2004 | **LAST POSITION** Re-entry

Jody: If you went through a 'slightly too into vampires' phase, *Bloodlines* is for you. An RPG made by people who played immersive sims, it turns you into a bloodsucker then lets you loose on the streets of LA. To survive you have to drink blood (in lush, spotlit scenes, the camera spinning round the act), and navigate vampire society (with characters so expressive they make more recent games seem stiff). Its vampires are vintage manipulators, as much a danger to each other as any hunter. You're given plenty of freedom in how you deal with them – and enough rope to make your own noose.

Phil: Given that the planned sequel doesn't seem to be happening, I guess we'll pop the original back in the list. Just make sure to download the fan-made patch first.

92 C&C REMASTERED COLLECTION

RELEASED 2020 | **LAST POSITION** 85 ▼

Phil: The original *Command & Conquer* and *Red Alert,* lovingly packaged up and remastered. What's truly remarkable about these games is that, over a quarter of a century since their original release, they're still a hell of a lot of fun to play. The pacey campaign missions challenge you to wipe out your enemy with often limited resources, making use of environmental features, special units and a wonderful tech tree. It's a concentrated blast of everything that makes the RTS great.

91 MASS EFFECT LEGENDARY EDITION

RELEASED 2021 | **LAST POSITION** New

Jody: The three good space opera RPGs jammed together, with fewer bugs, more DLC. What kind of space captain do you want to be? Your version of Commander Shepard is free to be a diplomat giving inspiring speeches, a badass punching first and shooting later, or a dreamboat smooching blue aliens.

The first game starts strongly, introducing a galaxy built on familiar sci-fi ideas, but with weird aliens too. It finishes strongly as well, a run of missions building to a the defeat of an impossibly powerful invader. In the middle there's some padding where you drive across identikit planets, which is a shame. And the less said about the third game's ending, the better. *Mass Effect Legendary Edition* is mostly in this list for *Mass Effect 2*, the Goldilocks centrepiece that set plot aside to focus on character. *Mass Effect 2* has you put together a crew of 12 who, like the universe, build on familiar clichés taken to surprising places. Across missions that jump from undercover infiltration to action setpiece to mystery thriller you get to know your Dirty Dozen, and in choosing how you respond to their dilemmas, build a hero to lead them. By the end you feel so much ownership of your Shepard, you'll get confused by screenshots because the wrong character is in them.

90 OPUS MAGNUM

RELEASED 2017 | **LAST POSITION** 49

Phil: A puzzle game about beautiful machines. You're tasked with creating alchemical compounds, using pistons and rotators to manipulate atoms into their desired form. But as much as the story has fun with the conceit, the real satisfaction of *Opus Magnum* comes from the process of engineering a solution. There is no one way to solve any of the problems, so every machine is inherently your own design. Your attempt may be inefficient, even inelegant, but you'll love it all the same.

89 SEA OF THIEVES

RELEASED 2018 | **LAST POSITION** 78

Mollie: I think I may be one of the last remaining *Sea of Thieves* likers on our team, and that's mostly because I'm a massive gremlin in the game. In no other situation would it be socially acceptable for me to get absolutely trollied, vomit into a bucket and then douse my friends with my chunky goodness. Sailing the seas and plundering booty is fun and all, but drunkenly playing the concertina is the real reason I love this game so much.

88 TITANFALL 2

RELEASED 2016 | **LAST POSITION** 11

Nat: *Titanfall 2* has seen better days. That singleplayer campaign is still an all-timer, but the game really shone in multiplayer – and sadly, *Titanfall 2*'s servers are getting wracked by the kinds of DDOS attacks that left the first game nothing but unplayable.
Morgan: It breaks my heart that *Titanfall 3* seems like a fantasy at this point.

87 FALLOUT: NEW VEGAS

RELEASED 2010
LAST POSITION No change

Robin: This underdog-turned-critical-darling understands what *Fallout* should be in a way I don't think Bethesda ever has. A rich role-playing adventure with an intricate web of choices that holds up well, even if its visuals don't.
Chris: It's so deep that no matter how many times you've played, there are still new choices to make.

86 WHAT REMAINS OF EDITH FINCH

RELEASED 2017 | **LAST POSITION** 26

Rachel: It may have fallen a fair way down in our top 100, but *Edith Finch* is still a powerhouse of storytelling as you explore Edith's childhood home to discover how each of her relatives met their end. It's an incredibly elegant game, that lets you into the headspace of each person at a particular moment in their lives. A gorgeous and bittersweet experience.

TOP 100 2021

85 WORLD OF WARCRAFT

RELEASED 2004 | **LAST POSITION** 43

Sarah: I'll always love *World of Warcraft* but I've struggled with motivation to log in since the launch of *Shadowlands*. We went from being ridiculously overpowered in *BFA* to power systems that feel like they were tacked on as an afterthought. I'm still there and still raiding, but even that feels more like a chore the further into the expansion we go.

Steven: *World of Warcraft* is still such an influential game, but yeah, it feels like it's in the midst of a serious identity crisis. If you've never played it, it's still an enormous and enjoyable experience, but my god is *Shadowlands* starting to feel like a big disappointment. At least *WoW Classic* is trucking along just fine (assuming you're not into PvP).

84 SUPER MEGA BASEBALL 3

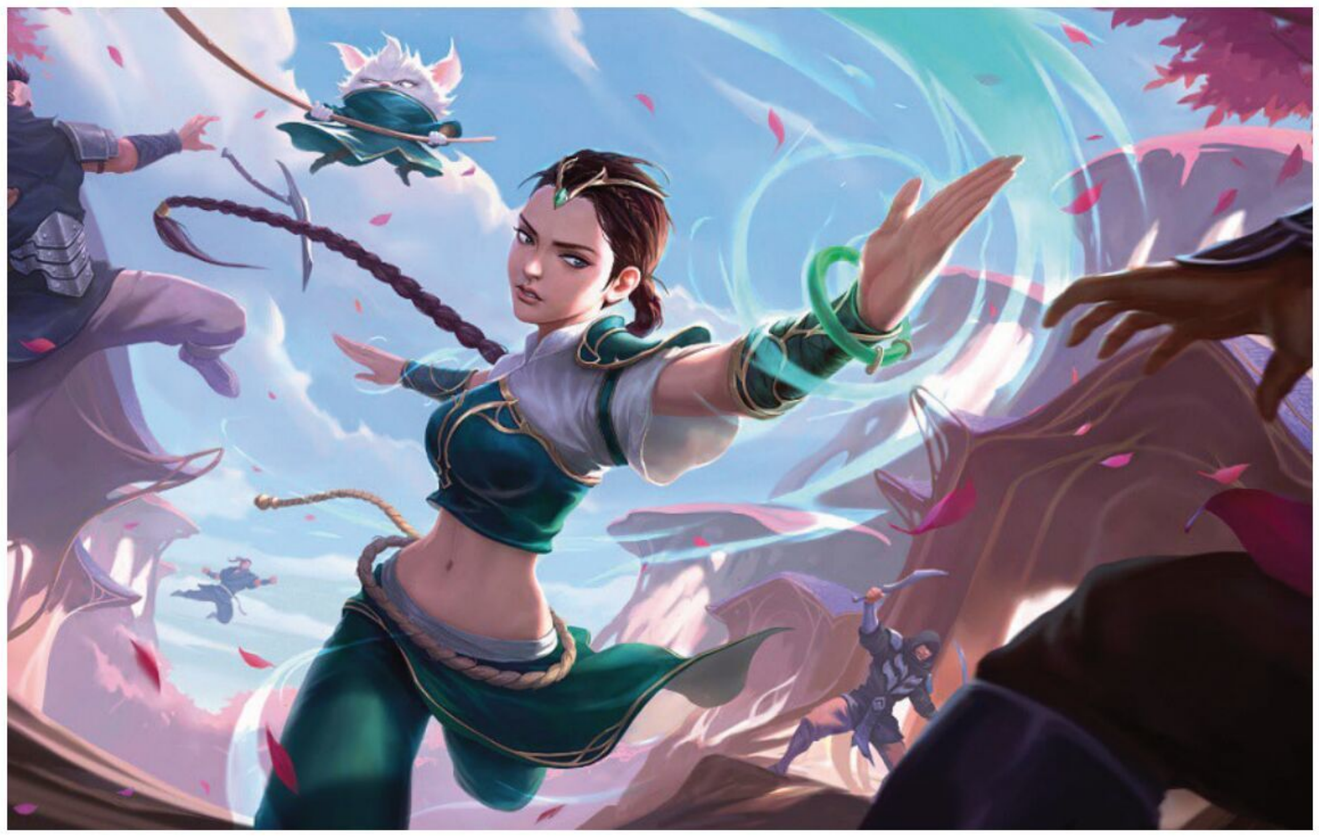
RELEASED 2020 | **LAST POSITION** 34

Chris: The *Super Mega Baseball* series has always been a fun and cartoony on-field baseball game, but *SMB3* added tons of depth when it comes to making your randomly generated players memorable. Their skills can be enhanced during a season or fade over time as they grow, age, and eventually retire. The player system gives your team a feeling of continuity over multiple seasons, and *SMB3* continues to take away the sting of *MLB: The Show* not being on PC.

83 ALIEN: ISOLATION

RELEASED 2014 | **LAST POSITION** 27

Andy K: In the seven years since *Isolation* was released, I haven't encountered a single game with an enemy as terrifyingly intelligent as its xenomorph. It's wild no one tried to top it. Maybe they just couldn't. Creative Assembly created something really special here: a big-budget game based on a major Hollywood property that is intelligent, subversive, and systematically interesting. It's a great stealth game, a genre-defining horror experience, and the stylish retro-future aesthetic makes it still one of the prettiest games on PC. In terms of design, art, audio, and atmosphere, it's a masterpiece. The story has some great moments – particularly the heartfelt message from Ellen Ripley to her daughter, which Sigourney Weaver plays beautifully. There will never be a better Alien game.



82 LEGENDS OF RUNETERRA

RELEASED 2020 | **LAST POSITION** 84 ▲

Robin: It speaks to my love for Riot's online CCG that I keep talking about it even though it makes *Hearthstone*-loving Tim Clark want to fire me. It's gone from strength to strength this year, introducing exciting new cards and a brilliant solo mode, while continuing to stick to its remarkably generous take on a free-to-play business model, which still lets you easily craft the decks you want without paying a penny. It has had some wobbles recently – including a chaotic meta and some controversial cosmetics – but refreshing transparency and bold action from the dev team gives confidence that they're listening. In some ways it does still feel like a game that's growing and finding its feet – but considering it's already so good, that potential is nothing but hugely exciting.

Steven: Frankly, I'm shocked that it's 2021 and one of my favourite games is a card game. You'd think after so many games there'd be no room for a new one to swoop in and innovate, but *Legends of Runeterra* continues to be brilliant. Robin talks a lot about its new stuff, but part of what keeps me coming back is just how wonderful the foundation it is built upon is. It's just a shame that it seems like *Runeterra*'s curse is that it will continue to be criminally overlooked by so many players.

PERSONAL PICK

Nat Clayton

UNBEATABLE: WHITE LABEL

Calling it now: arcade rhythm adventure *Unbeatable* is going to be the coolest game of whatever year it launches in. This year's *White Label* is a strong demo for its high-paced beats, framed by snapshots of a world oozing with sun-bleached, anime-tinted melancholy.

81 SUNLESS SKIES

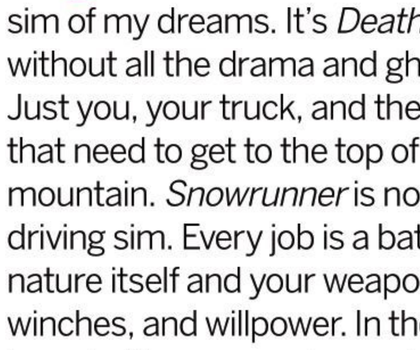
RELEASED 2019 | **LAST POSITION** 82 ▲

Fraser: Spaceships? Passé. Space trains? Now we're talking. *Sunless Skies* makes you brave the dangers of the void while inside a loco full of troubled crewmates, usually starving and being driven round the bend. Part trading sim, RPG and exploration romp, it's all weird, and elevated by the best videogame writing around. The far-ranging *Sovereign Edition* update introduces a raft of improvements, throwing new characters, trains and stories into the already dense mix.

80 SNOWRUNNER

RELEASED 2020 | **LAST POSITION** New

Morgan: *Snowrunner* is the mud trucking sim of my dreams. It's *Death Stranding* without all the drama and ghost babies: Just you, your truck, and the stack of pipes that need to get to the top of this mountain. *Snowrunner* is no tranquil driving sim. Every job is a battle against nature itself and your weapons are wheels, winches, and willpower. In the year since launch, *Snowrunner* has only gotten bigger and better with quality DLC and a vibrant modding community.



PERSONAL PICK

Sarah James

FINAL FANTASY 13

I know, I know. I wasn't keen on it at first either. But I stuck with it and it's become one of the *FF* games I'll find myself replaying every couple of years. The story is great, Lightning is badass, and while the combat isn't my favourite – hello *FF12* – it's still fun to play around with.

79 VALORANT

RELEASED 2020 | **LAST POSITION** 94 ▲

Evan: Replicating the weapons, map philosophy, and beautiful rhythm of *Counter-Strike* is some scientific accomplishment. *Valorant* is its own game, though, with meaningful technical advancements (it'll give you 90 fps on a graphing calculator) and magical character abilities that let you and your opponent compete for precious positioning.

78 HOMEWORLD REMASTERED COLLECTION

RELEASED 2015 | **LAST POSITION** 85 ▲

Nat: *Homeworld*'s tragic space opera is timeless, but its original release is a little less so. Thankfully, the *Remastered Collection* is still a fantastic way to experience a truly singular spacefaring RTS – one that has attracted a healthy modding scene that means you can recreate fleet battles from Star Trek to *Mass Effect*.

77 WARHAMMER: VERMINTIDE II

RELEASED 2018 | **LAST POSITION** 74 ▼

Robin: The leading light of *Left 4 Dead*'s many imitators, trading guns and zombies for rich melee combat and a wonderfully well-realised take on the horror and humour of the Warhammer Fantasy setting. The new (free) *Chaos Wastes* expansion is a treat, too – a wild, co-op roguelike mode that's full of surprises.

76 CAVES OF QUD

RELEASED 2015 | **LAST POSITION** 59 ▼

Steven: A near-perfect middle ground between the daunting complexity of classic roguelikes and the mind-boggling *Dwarf Fortress*. It's also the weirdest RPG I've ever played. Sentient beanstalks, tinker bears, space-time paradoxes, fungal infections – it's almost impossible to describe. Each new game, an entire world (with its own cultures and history) is generated, and you can play as anything from a desert nomad to a cybernetically enhanced half-man-half-tank. Just play it.

75 THE ELDER SCROLLS V: SKYRIM

RELEASED 2011 | **LAST POSITION** 60 ▼

Harry: A decade on, *The Elder Scrolls V* is a fixture in the PC gaming consciousness. *Skyrim* slips down the Top 100 again this year, and *The Forgotten City*, based on a *Skyrim* mod, has just come out, providing competition for next year's list.

Jody: In my current playthrough I have my own museum, a chainsword, and fabulous hair. The Special Edition means *Skyrim* handles ridiculous mod loads without instability. It's better than ever. I'll be tired of *Skyrim* when I'm tired of life.

74 TEKKEN 7

RELEASED 2017 | **LAST POSITION** New

Mollie: I've played my fair share of fighting games over the years, but few have kept me coming back in the way *Tekken 7* does. Every hit, block and sidestep feel so intensely satisfying to me. Couple that with a banging soundtrack, cinematic ultimate moves and a heart-pounding dramatic slow-mo cam, and every match feels like a full-blown theatrical performance.

Though I still lament the lack of Christie Monteiro in the game, the roster is solid. Lucky Chloe has quickly become a series favourite for me, and wild DLC characters like The Walking Dead's Negan and *Final Fantasy XV*'s Noctis just work somehow. *Tekken 7* is easily the best 3D fighter out there right now, and my favourite fighting game in recent memory.

Graeme: *Tekken 7* is an easy fighting game Hall of Fame contender, but it's also a love letter to long-term fans, tying-up the soap opera in perfect melodramatic fashion. As we're introduced to Kazumi Mishima, wife to Hahatchi, she instructs Akuma from *Street Fighter* (yeah) to kill her husband if she fails to do it herself. Also Yoshimitsu is an alien, I guess?

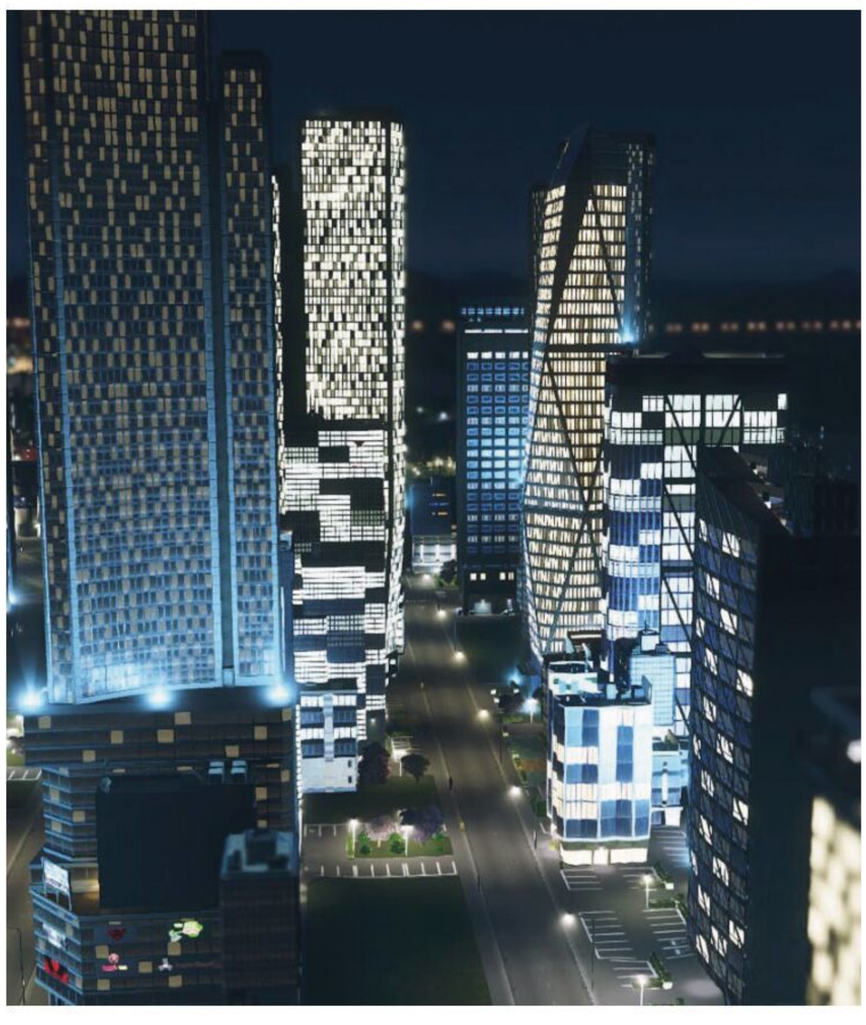
The bombastic combat is what makes *Tekken* so addictive, but it's the series' unflinching commitment to lore and personalities that makes me love it.

TOP 100 2021

73 AMERICAN TRUCK SIMULATOR

RELEASED 2016 | **LAST POSITION** New

James: Pool Noodle, this is Ham Hock – we've got *American Truck Simulator* coming up on the left, taking point. *Euro Truck Sim* can take a breather. This son of a gun's packing Texas and Idaho, on the way to pick up Wyoming. Kanye West lives in Wyoming. A recent multiplayer update means you can drive by Kayne's yard with a friend. Nothing eases the weight of a heavy load, on the truck and the soul, like a convoy. Over.
Andy K: I love driving through the desert at night, but my heart belongs to *Euro Truck Simulator 2*. The larger map has a lot more variety, from the mountains of Norway to the vineyards of France, making for more exciting road trips.



72 CITIES: SKYLINES

RELEASED 2015 | **LAST POSITION** 32 ▼

Fraser: *Cities: Skylines* continues its reign, with few new urban city builders appearing to steal its crown. It remains undefeated in part because of the dearth of competition, but the many DLC additions and huge list of mods have ensured that even after five years it still has plenty to offer would-be mayors. There's even an expansion exclusively dedicated to parks. And it turns out that flooding cities with poo doesn't get old. Sorry, citizens!
Phil: The city-building genre has had something of a resurgence thanks to games like *Frostpunk* and *Anno 1800* offering up their very different takes on the basic formula. But if you want the best game to actually build a city in, then here it is.

71 METAL GEAR SOLID V: THE PHANTOM PAIN

RELEASED 2015 | **LAST POSITION** 43 ▼

Wes: A dramatic departure from previous *Metal Gears*, which is what I love about it. After the on-rails nonsense of the intro, it pretty much sets you free to be the ultimate spy in an amazing sandbox.
Rich: Simply one of the best games ever made, a unique take on open-world design, and rammed with things to do. This feels like the game *Metal Gear Solid* was always building towards: ignore any nonsense about it being unfinished, and enjoy Kojima Productions' finest ever game.

PERSONAL PICK

Mollie Taylor

PERSONA 5 STRIKERS

Yes, it's weird that this is on PC before *Persona 5*. But *Strikers* is fantastic, and the only *Warriors*-style game I've ever managed to stomach. It manages to retain most of *P5*'s original charm and jazzy style, feeling like a fun summer reunion with your old school pals.

70 FROSTPUNK

RELEASED 2018 | **LAST POSITION** 64 ▼

Fraser: Few management games have made me feel like such a monster, but that's what happens when you become a fascist to save a few lives and they freeze to death anyway. The cold and desperation makes you cold and desperate. *Frostpunk* is a challenging apocalyptic city builder with plenty of engaging systems, but it's the high stakes and brutal consequences of your decisions that makes it special. And thanks to the DLC, you can also see what life was like just before the big freeze.

69 ARMA 3

RELEASED 2013 | **LAST POSITION** 44 ▼

Evan: Is *Arma* a tedious and complicated sim, or a peerless sandbox-playground for military antics? Years into its lifespan, the contradiction is potent: introducing a new player means handing them a list of mods they 'absolutely' need, and a longer list of unusual keybinds. But at the end of that not-so-basic training awaits a serious and often silly game about riding in a helicopter with a dozen of your closest Discord friends, one of whom then crashes that helicopter into a tree.

PERSONAL PICK

Evan Lahti

RISING STORM 2: VIETNAM

An underrated FPS that draws on obscure skills: your knack for the perfect artillery spot; your willingness to die. The asymmetries between the Vietnamese factions (North and South) and US forces create memorably scrappy firefights. A messier and better *Battlefield*.

68 TEARDOWN

RELEASED 2020 | **LAST POSITION** New

Nat: Remember the first time you took a sledgehammer to a house in *Red Faction Guerrilla*? *Teardown* is that, but pushed to its best extreme. A destruction sandbox where breakable buildings aren't a backdrop to gunfights, but instead used to prop up an incredible set of heist puzzles.

Teardown may be voxelated, but everything breaks as you'd expect. Wood buckles. Plaster cracks to reveal underlying brickwork. Fire spreads as smoke billows through hallways, and a remarkably efficient approach to ray-tracing makes sure it all looks perfectly tactile.

In most levels, you're free to explore and destroy the map as you see fit. You'll have a set number of items to rob (briefcases, safes, cars), and once you snag one, the timer starts. Carve an optimal route through the map, grab the goods, and make it out before the cops arrive. Simple, but nerve-wracking.

Beyond that, though, *Teardown*'s exploding mod scene has turned the voxel playground into a brand-new *Garry's Mod*. There's a workshop packed to the brim with new maps to smash up, and a wealth of toys ranging from *GMod*-style physics guns to miniguns akimbo. *Teardown*'s puzzles are decent fun, but I'll be smashing my way through fan-made maps for a long time yet.

67 UNAVOWED

RELEASED 2018 | **LAST POSITION** 57 ▼

Fraser: Wadjet Eye's best adventure game also borrows a lot from great RPGs. *Unavowed* throws you into an ancient society of magical problem-solvers after a possession ruined your life. It's got big party-based RPG vibes, complete with special origin stories and a branching plot that goes to some surprising places.

But this is still firmly a 2D point-and-click, where most of your time will be spent solving mysteries. And what excellent mysteries they are, forcing you to use both magic and your investigative chops to solve. What lingers, though, are the charming characters and *Unavowed*'s vision of New York – a place simultaneously familiar and utterly alien.

66 FOOTBALL MANAGER 2021

RELEASED 2020 | **LAST POSITION** New

Dave: We finally made it, ma! *Football Manager* is in the PC Gamer Top 100, rightfully taking a place in the pantheon of PC greatness. As the finest long-term RPG on any platform, I'd argue it's a bit too far down the list, but there are still many who foolishly see it as some sort of glorified spreadsheet. Football (of the less well armoured soccer variety) is obviously central to the game, which does put people off. But *FM* is a mix of a sporting version of *The Sims*, marshalling and developing your little computer people to kick a ball about better than other little computer people, and a heart-wrenching RPG about success, failure, heroism, the fragility of youth, lost potential, and the inevitable decay of our own corporeal forms.

65 COMPANY OF HEROES 2

RELEASED 2013 | **LAST POSITION** New

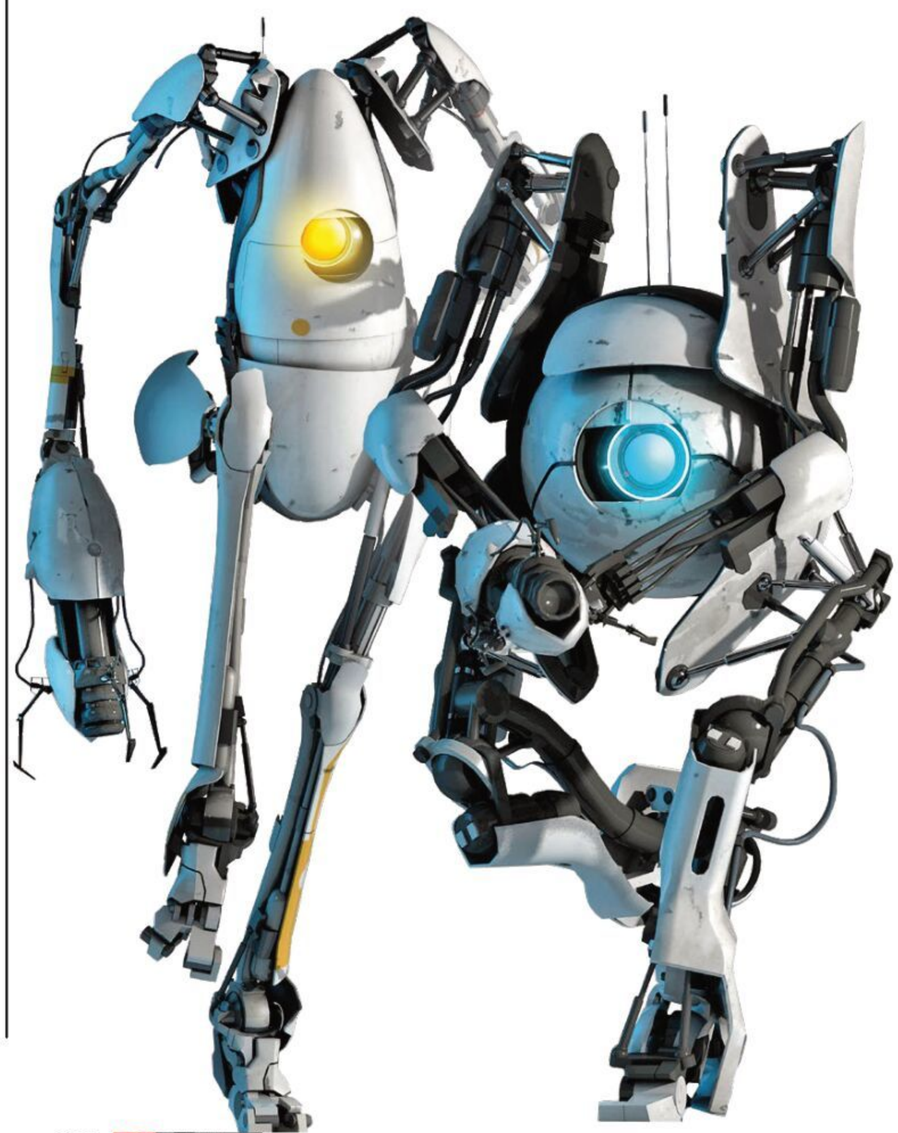
Fraser: Finally! I've been trying to get *CoH2* in here for years. This RTS is perhaps a controversial choice, and is certainly more divisive than its predecessor, but the first game has had its time on this list. There are plenty of reasons to recommend the sequel, especially if you're tired of the Western Front, such as the fantastic *Ardennes Assault* expansion, which features a dynamic turn-based campaign – something Relic is taking even further in the upcoming *Company of Heroes 3*.

TOP 100 2021

64 FORZA HORIZON 4

RELEASED 2018 | **LAST POSITION** 36 ▼

James: The game that helped me understand why James Spader makes love to his car in Crash. Cars are cool and hot and *Horizon 4* knows it. Play it as a racing simulation or turn on all the assists and play it like Lego. Or just deck out a van with a Dragonball Z livery and drive it off cliff edges, capturing the poetic footage as it tumbles.
Nat: *Forza* lets me tear down my own backyard in the big daft *Halo* jeep, which makes it the best racing game ever.
Rich: I just love that you can have a race in Transit vans.



63 PORTAL 2

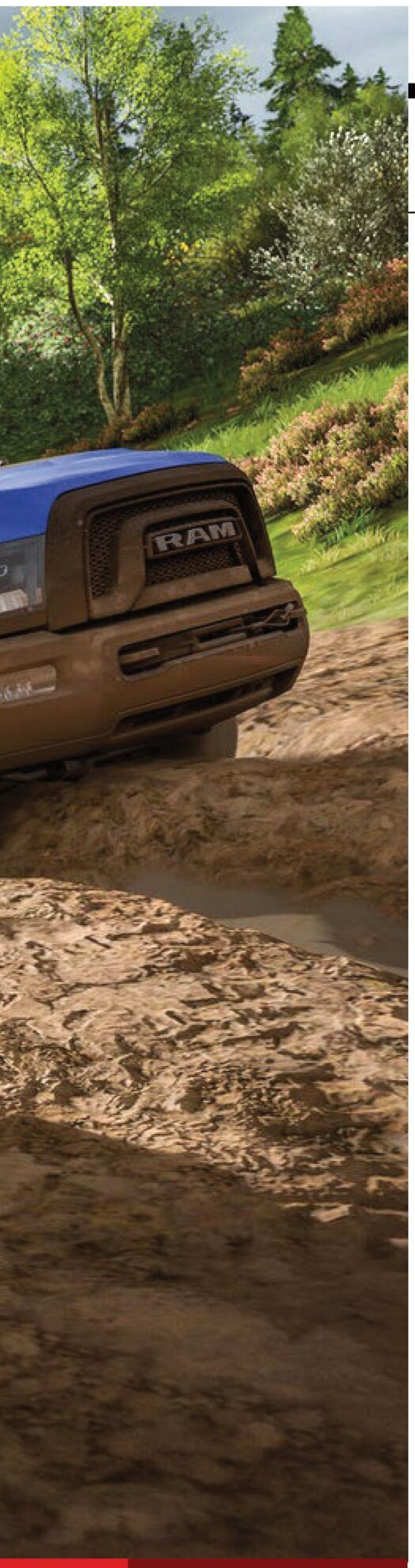
RELEASED 2011 | **LAST POSITION** 47 ▼

James: A game that bends the rules of space also exists outside of time. *Portal 2* is one of the funniest games ever made. Even if the portal puzzles get easier to parse with every run, I'm always finding new routes and accidentally developing speedrun strats, buoyed by good humour, great performances, and excellent tunes throughout. If you've yet to play the co-op campaign, do it now. Spec out incredibly complex solutions to simple problems, together.
Harry: If you like jokes, games, and puzzles, *Portal 2* is essential. It's not a looker by today's standards, of course, but it doesn't need to be. Cleverness, invention, and laughs win over graphics any day. Plus, it'll probably run very nicely on your Steam Deck.

62 ANNO 1800

RELEASED 2019 | **LAST POSITION** New

Phil: Ubisoft's trade-focused city-builder has grown into something remarkable. Over a handful of DLC seasons it's doubled down on the satisfaction of seeing a territory grow by adding a handful of new regions with specific quirks. In Africa, you'll create canal systems to irrigate the land. In the Arctic, you'll build airships to circumnavigate imposing glaciers. And back in Europe, you'll expand your docks into a global hub supporting your ever-expanding empire.



61 SESSION

RELEASED 2019 | **LAST POSITION** 55 ▼

Nat: Tony Hawk might've introduced me to skateboarding, but *Session* understands why I've come to love it. There are no time limits and no high scores: just you, your board, and an urban sandbox to destroy.

Session manages to make the simple act of rolling around on your skateboard feel incredible. Controls can be tweaked to be as easy or tough as possible, and rare that a game can make the humble ollie feel satisfying. Challenges that'd be trivial in *THPS* become hour-long battles to nail a nollie heelflip into a lipslide off the sidewalk.

Admittedly, *Session* is still extremely work-in-progress. Character models are a bit janky, animations bug out, and the physics are often hilariously broken. But each new update brings a new way to express your skating style, whether it's the introduction of freestyle primo and casper tricks, or a new city block featuring iconic skate spots.

James: Normally, I'd hold back on recommending an Early Access game, but *Session*'s impressive growth and momentum easily make up for the jank. It's already had a total physics overhaul, and an animation refresh is on the way. New trick systems and levels show up every couple of months, and with publisher Nacon on board, we might see *Session* pick up even more speed on the way to 1.0.

60 LOOP HERO

RELEASED 2021 | **LAST POSITION** New

Harry: Don't be put off by the aesthetic, this is one of the most accessible games I've played in 2021. It's nostalgic style belies an absorbing adventure that's wonderfully simple to start, but brutal to master. You decide the difficulty of your knight's journey by adding monster tiles for more gear and resources, or helpful boons, colouring in the blackness with often surprising results. Take your resources or try for one more loop? For much of 2021 I've struggled to choose.

59 PARADISE KILLER

RELEASED 2020 | **LAST POSITION** New

Morgan: *Paradise Killer takes* the most classically compelling premise in literary history (there's been a murder, you have to solve it) and places it in one of the strangest, most interesting videogame worlds I've ever explored. Piecing together timelines and motives while interrogating characters named Doctor Doom Jazz or Lydia Day Break never gets old. It's a visual novel for people that don't think they'd be into visual novels. A true sleeper hit.

58 CHIVALRY 2

RELEASED 2021 | **LAST POSITION** New

Fraser: A game that lets you chop off someone's limbs, pick them up, and then use them to beat someone else to death – all while you're screaming, they're screaming, everyone just won't stop screaming. They're really screams of joy, though, because this multiplayer medieval combat romp is just so much damn fun.

57 GRAND THEFT AUTO V

RELEASED 2015 | **LAST POSITION** 50 ▼

Wes: The online heists are still some of the most intricate co-op gaming you can do today. Rockstar's online infrastructure is terrible, though.

Morgan: Yep, finally completing *GTA Online*'s big Doomsday heist will go down in the history books of my friend group. Unfortunately, so will all the hackers and griefers who tried to ruin our fun.

56 GENSHIN IMPACT

RELEASED 2020 | **LAST POSITION** New

Steven: Since its launch, Genshin Impact has grown in a way no MMO ever could. Player housing, new territories, and a bunch of new characters – it's crazy how good this free game is.

Morgan: Technically free. Its gacha money-making tactics were overbearing enough to turn me off.

Steven: You only have to spend the money if you want to.

TOP 100 2021

55 PREY

RELEASED 2017 | **LAST POSITION** 56 ▲

James: I bounced off *Prey* a couple of times, but once I accepted that you're always on the back foot it clicked. This is *Resident Evil* in space, but you choose what kind of key you want to unlock the next door with: hacking, secret vent pathways, or turning into a banana and sliding through a hole in the wall.

Jody: The space station being a contiguous space you explore inside and out so thoroughly makes *Prey* the *System Shock 3* of my dreams. You can hop into space to find alternate routes. You can find every single member of the crew, even finding the character sheets of the D&D group on board and then a recording of their game. There's so much detail.

54 PATH OF EXILE

RELEASED 2013 | **LAST POSITION** 51 ▼

Fraser: This is the only action-RPG I think about. For years the game has been evolving and spitting out experiments, beckoning me back time and time again to slaughter hordes of monsters and obsess over loot and builds. The main progression system is the pinnacle of ARPG character building, and one that's kept me tinkering away for the better part of a decade. I suspect only the in-development sequel will be able to tear me away.

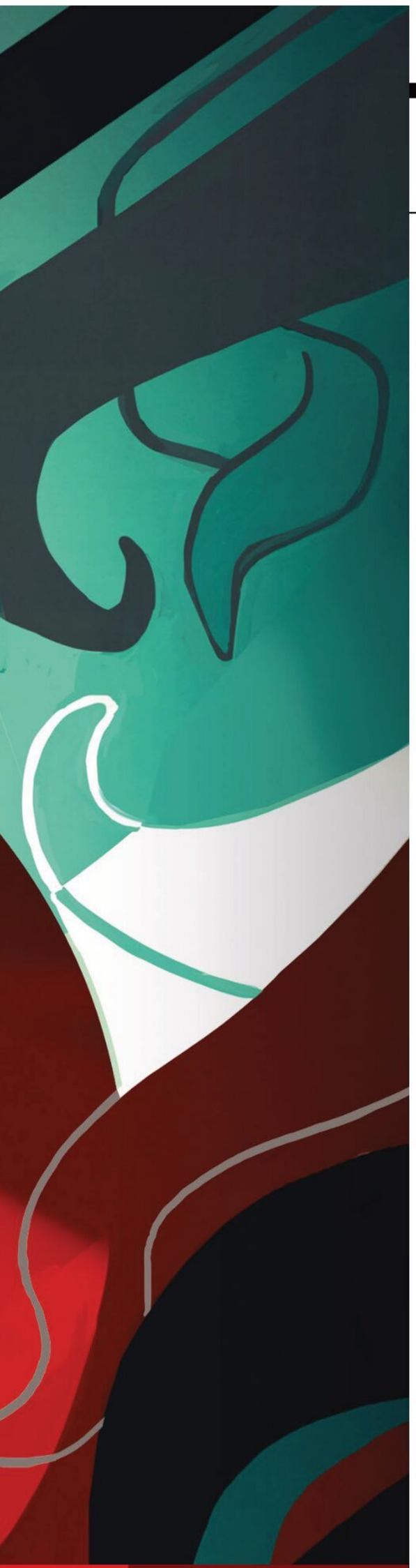
53 SEKIRO

RELEASED 2019 | **LAST POSITION** 6 ▼

Wes: I don't want to start a debate about game difficulty, but overcoming *Sekiro*'s challenge was a thrill I haven't gotten from an action game since *God Hand*. It demands you play on its terms. Without the flexibility of *Dark Souls*' RPG systems, you simply have to master the blade. The moment you parry a boss's final hit and counter with a deathblow you'll realise you've felt dead inside for years.

James: I prefer From's RPGs, but nothing's gonna best *Sekiro*'s take on sword combat for a long time.

Morgan: Come on James, *Chivalry 2* is right over there. *Sekiro* is hands-down my favourite From game yet. By reining in its combat options and focusing on a single weapon, it ended up with combat so good that Star Wars copied it.



52 ASSASSIN'S CREED VALHALLA

RELEASED 2020 | **LAST POSITION** New

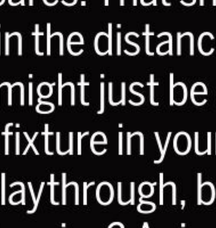
Fraser: Yes, it's more *Assassin's Creed*, with a vast open world filled with stuff to climb, people to murder and crap to collect. While much is unchanged, I still found myself spending something like 150 hours playing. As a Scot I hate to say it, but England is a pretty nice place to explore. It's jam-packed with some of the series' most charismatic denizens, not least of which is Eivor, a terse but charming protagonist whose growls and sighs speak volumes. She's my favourite assassin, even over the superb Kassandra.

Sarah: I absolutely adored Eivor, and her horse (who I named Horace). We both spent far too much time exploring England to compare places I've visited with their in-game counterparts. I'm still slightly jealous that Andy K came up with the Jorvik/York comparison article before I'd thought of it.

Steven: I'm such a big fan of this new direction *Assassin's Creed* has taken – even if it sometimes still feels a little too big for its own good. Shifting to become an RPG with a branching narrative is just such a fun way to intimately explore a romanticised version of different historical periods, and *Valhalla* makes some really strong improvements in the narrative department, especially in the complex relationship between Eivor and her brother.

PERSONAL PICK

James Davenport



THE EVIL WITHIN 2

The Evil Within 2 takes horror into huge open spaces and still pulls off a ton of memorable scares. That shed in the distance might just be a fixture in your playthrough, but in mine? Anima harassed me the rest of the game, hair to the floor with that horrible shriek.

51 BLACK MESA

RELEASED 2020 | **LAST POSITION** 63 ▲

Nat: For a long time, *Black Mesa* was a joke. An over-ambitious attempt to completely remake *Half-Life* from the ground up as a standalone mod. But lo and behold, it's finally finished – and bloody hell, if it isn't a stunning thing. The game deftly reimagines Valve's 1998 debut, trimming the more tedious parts while remaking Xen from the ground up. I wouldn't say it replaces the seminal shooter outright, but it's a damn fine way to experience it from a brand new angle.

50 SATISFACTORY

RELEASED 2019 | **LAST POSITION** New

Wes: A factory building game so perfectly named I defy anyone to talk about it without using the word 'satisfying'. It can't be done! My first factory was a mess of conveyor belts on a forest floor, ugly and inefficient, so I tore it down and rebuilt. And again. And again. My multiplayer crew is now building towering skyscraper factories linked by automated sky trains. Some people lose a year building castles in *Minecraft*; I lost one building iron rods in *Satisfactory*, and I don't regret a second.

PERSONAL PICK

Andy Kelly

L.A. NOIRE

An anthology of compelling detective stories, set in a lavish, painstakingly researched 1940s Los Angeles. The face capture tech, along with a cast of genuinely great actors (including familiar faces from Mad Men), gives *L.A. Noire* a prestige TV feel, and it's a world I love losing myself in.

49 KERBAL SPACE PROGRAM

RELEASED 2015 | **LAST POSITION** 40 ▼

Phil: Build rockets and send them into space. Or, just as likely, fail because of a disastrous flaw with your design. *Kerbal Space Program* takes all the complicated maths needed to successfully hurl functional machines out of a planet's atmosphere and presents them in a way that celebrates creativity, expression and fun. There's still nothing quite like it.

48 SPELUNKY 2

RELEASED 2020 | **LAST POSITION** New

Evan: Depth, literally and figuratively. Creator Derek Yu calls it "spiky", a label that describes many of the things you can impale yourself upon as well as the emotional highs and lows its teeming, subterranean universe produces. A great spectator game, *Spelunky 2*'s streaming and YouTube community is full of experimentation and unbelievable feats.

47 THE JACKBOX PARTY PACK 7

RELEASED 2020 | **LAST POSITION** New

Robin: I don't think there exists a better digital icebreaker than a good round of *Jackbox*. It's brilliantly accessible – anyone who can work a smartphone can join in – and adapts wonderfully to the sense of humour of whatever group you've assembled. Family gatherings, drunken parties, or lunchtime in the office – it does it all.

46 MONSTER HUNTER WORLD

RELEASED 2018 | **LAST POSITION** 35 ▼

Rich: A triumphant reimagining of Capcom's excellent series that looks gorgeous and delivers some of the best co-op you'll ever see. Incredible combat with huge depth, spectacular monsters and environments, and there's so much of it. You never want this game to end.
Wes: The 2020 expansion *Iceborne* adds an endgame zone you can spend months in and a vastly streamlined gathering hub for multiplayer. It's everything I didn't know I needed in the base game.

45 HALF-LIFE: ALYX

RELEASED 2020 | **LAST POSITION** 20 ▼

Chris: One of the few blockbuster games built from the ground up for VR, and certainly the best and most beautiful. Whatever Valve did under the hood with the game's locomotion, it's easily the most comfortable VR game, one that I could play for hours at a time without feeling the nausea or headaches VR usually gives me after about 40 minutes. Plus, it cleverly rewrote some *Half-Life* lore that's been on the books for a decade, priming us for whatever comes next.

44 DEVOTION

RELEASED 2019 | **LAST POSITION** New

Rachel: First released back in February 2019, *Devotion* was available on Steam for only six days before it was hit with an infamous review-bombing. Determined to re-release the game, Red Candle put it back up for sale this year.

Sharing many similarities to Konami's claustrophobic house in *P.T.*, *Devotion* is a story about a family living in a small 1980s apartment in Taiwan, each member having their own personal demons dragged out into the house's stark fluorescent lighting. Everything kicks off after the daughter contracts a mysterious illness, which causes the desperate father to tumble into a spiral of paranoia and misplaced spiritualism. What's great about *Devotion* is that there are no literal monsters, the game is more interested in how the troubled headspaces of a family can seep into the physical space of a home. It's not often we get to see the exploration of a person's religious faith, and seeing how Red Candle has used that to create an insidious story of family tragedy is like no other horror game I've played. It's a horror tale that actually cares about its characters, and together with artful sequences and spine-chilling moments, it's truly one of the best horror stories of all time. A game that was well worth the wait.

43 RESIDENT EVIL VILLAGE

RELEASED 2021 | **LAST POSITION** New

James: So much more than the tall vampire woman. I mean, Lady Dimitrescu certainly makes a lasting impression, but she's just one chapter of this excellent cosmic horror anthology.

Moving from a frozen village overrun with lycans, through a classic game of cat and mouse in a lavish castle, and later arriving at colour-drained industrial body horror – something like Hellraiser meets Saw – *Village* goes from goofy action to the scariest setpieces in the series' history. Along the way, it embraces everything I identify with *Resident Evil*: locked doors, ridiculous keys and goofy characters. This is *Resident Evil* at its most self aware, at its scariest, and its most surprising.

42 THE SIMS 4

RELEASED 2014 | **LAST POSITION** 18 ▼

Mollie: I have a lot of love for *The Sims 4*. It had a rocky launch and issues that still persist years later, but it's the first game I boot up whenever I get that creative itch. The build mode is genuinely fantastic, and I feel like Maxis is finally getting the hang of making consistently excellent expansion packs. The gameplay is still a little vapid compared to earlier entries, but it's a hell of a lot better than it used to be. The biggest bummer, and the reason for its steep drop this year, is how high the financial barrier to entry has become. The base game is painfully barren, with simple additions like seasons and pets essentially locked behind paywalls. You could buy a lot of games in the Top 100 for the same price as a complete *Sims 4* collection, and that makes it harder to recommend.

41 HADES

RELEASED 2020 | **LAST POSITION** 79 ▲

Jorge: A gorgeous and stylish hack-and-slash roguelike featuring some of the best writing, voice acting, and music around. As Zagreus, the Prince of the Underworld, you try to escape to the land of the living to meet your mother. Meanwhile, your father, Hades, is doing everything in his power to keep you from her. Playing *Hades*, you'll tell yourself, "OK, this is the last run, then I'm going to bed," but before you know it, you're up at 4am for the third night in a row.

PERSONAL PICK

Chris Livingston

WEST OF LOATHING

Truly funny games are rare, and in *WoL* everything from the dialogue to the item descriptions are brilliantly witty, so much so you'll spend extra time playing just to make sure you've found every last bit of text. And despite the stick figure art, it's a true, open-world Western! Yeehaw!

40 BATTLETECH

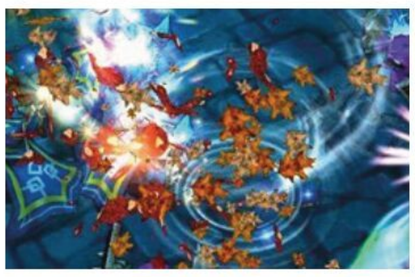
RELEASED 2018 | **LAST POSITION** 29 ▼

Fraser: One of my favourite tactics games of all time, *BattleTech* is an exciting romp through a galaxy full of intrigue, ambitious nobles and giant mechs. There's a good campaign tying all the fights together, but brawling with steel monstrosities is what keeps the grin on my face. You can build your mech dream team – axe-wielding behemoths with jetpacks, gargantuan mobile weapon platforms, precious wee scouts – and then fling them into tricky battles. To the victor goes the scrap.

39 LEAGUE OF LEGENDS

RELEASED 2009 | **LAST POSITION** 28 ▼

Steven: *Dota 2* players will crucify me for it, but *League of Legends* is the only MOBA you should play today. It's just so much more accessible, without sacrificing any of the crazy high-level teamplay, and its emphasis on skilful solo play makes for ridiculously exciting moments when a single player can swing the game in their favour. It's also fun being a part of a cinematic universe, with *Legends of Runeterra* and *Teamfight Tactics*.



PERSONAL PICK

Morgan Park

KNOCKOUT CITY

If you told me months ago that EA would put out a dodgeball game that'd consume my life for a month, I'd laugh. Still, *Knockout City* really is that good. Its unique combat system looks like a kid-friendly shooter at first, but it's all about timing, fakeouts, and coordination.

38 COUNTER-STRIKE: GLOBAL OFFENSIVE

RELEASED 2012 | **LAST POSITION** No change

Rich: I still play *Counter-Strike* on a weekly basis and, even when the likes of *Siege* or *Valorant* have tempted me away for a time, I always come back. The competition is full of gadgets and powers and classes, but *CS:GO*'s absolute purity and dedication to a core that works so well remains irresistible. And while I've heard some awful stuff on team chat, I've also made a lot of good buddies over the years: when you have a little 'crew' that's on regularly, this game goes to another level.

Evan: It's the most popular FPS in the world, an almost decade-old giant that stands on the shoulders of arguably the most successful mod of all time (sorry, *DOTA*). It's one of my most-played games ever. But in 2021, it's aging. Is it really the shooter I'd recommend to someone first right now? No way. Recent experiments like adding a battle royale mode have only revealed the greying tech it sits upon.

Nat: I'm not a *CS:GO* player. But as a veteran Source mapper, I have endless respect for the way it's kept the torch of community map-making lit all these years. Source may be dated, but *Counter-Strike*'s mappers are doing incredible things with it.

37 NIER: AUTOMATA

RELEASED 2017 | **LAST POSITION** New

Mollie: I don't even know how to put into words what *Nier: Automata* is and why it's so special, but I wish I could wipe my brain and experience it again for the first time. A flawless soundtrack, satisfying combat and heart-wrenching story permeate every second. It hasn't always run the best on PC, but a brand-new fix makes this the perfect time to dive in.

Steven: I finally beat *Automata* for the first time this year and damn, I'm so glad I did. There's just nothing like it. And while I'd love for us to also make room for *Nier: Replicant*, its prequel, on this list, I'd encourage anyone who loved *Automata* to go back and play it. It's arguably an even more emotionally compromising game.

36 RETURN OF THE OBRA DINN

RELEASED 2018 | **LAST POSITION** 23 ▼

Rachel: Although it's fallen a little on our list, *Return of the Obra Dinn* is still one of the best detective games on PC. Apart from *Paradise Killer*, another fantastic detective game that you will have passed to get here, no other game makes you work harder for answers and celebrates your victories than *Obra Dinn* does. The ghostly tale it spins of the disappearance of a single ship and its crew will chill you to the bone. It still gives me the heebie-jeebies.

Phil: Possibly the most perfectly paced puzzle game around. As you explore, you'll naturally stumble into hints that can recontextualise your thinking and send you down a rabbit hole of new revelations.

Rich: I could honestly argue for this being number one, it's simply stunning. Play it!

35 KENTUCKY ROUTE ZERO

RELEASED 2013 | **LAST POSITION** 13 ▼

Rachel: There have been some amazing story-led games released in the last year, which means that our old friend *Kentucky Route Zero* has dropped a considerable way. Its highway adventure is still the most evocative and aetherial story on this list, full of magical-realist tales of rural America and its struggles. I'll never forget listening to a chorus of ghostly voices inside a mineshaft belonging to those who had lost their lives in a rockslide. It's both haunting and beautiful.

34 OLD WORLD

RELEASED 2021 | **LAST POSITION** New

Fraser: I've been waiting a long time for a historical 4X game that can give *Civilization* a run for its money, and here it is. Mohawk Games has taken all the best parts of the venerable series, but focused on antiquity rather than all of human history. Every turn represents a year, which allows *Old World* to take a more intimate approach, exploring characters instead of just empires.

There are plenty of innovations, such as an Order system that teaches you to prioritise actions for that turn, but it's definitely the *Crusader Kings*-style characters and abundance of narrative events that feel like the most important addition. Leaders age, die, get married, have children, plot... and you've got a whole court of people to worry about. It's *Civ* reimagined as a life sim and RPG.

33 PLANESCAPE: TORMENT ENHANCED EDITION

RELEASED 2017 | **LAST POSITION** 11 ▼

Jody: There's an argument that the real defining feature of RPGs is the areas between fights where you just talk to people, and Planescape's Sigil – a city on the inner surface of a ring with magic doors that connects it to multiple dimensions – is one of the best. There's a guy who's been on fire so long everyone's used to it and he's become a local bar's mascot, a zombie called The Post whose body is used as a billboard, a hivemind of several thousand psychic rats, and a part-demon thief voiced by Sheena Easton. The combat isn't great, but there's not much of it and way more multidimensional weirdos worth meeting.
Steven: I'd recommend *Torment* as a kind of dessert to anyone who played and loved *Disco Elysium*.

32 DARK SOULS REMASTERED

RELEASED 2018 | **LAST POSITION** 31 ▼

Rich: The only downside to *Dark Souls*' success is that the game has been so influential that it's almost a cliché to talk about how good it is. One of the greatest adventures in games, set in a world realised with outstanding imagination, mingled with a deliberately vague and surprising multiplayer element.
James: *Dark Souls* is challenging, but like a good coach. Take a breather. Stretch out. Check yourself. Sleep on it. Come back when you're feeling better. Don't give up.

31 DESTINY 2

RELEASED 2017 | **LAST POSITION** 14 ▼

Tim: A mere four years into its life on PC, I did not expect to see *Destiny 2* climbing this chart on the back of its storytelling. Once rightly derided for hiding its rich lore in grimoire cards and armour flavour text, over the last year *Destiny 2* has quietly reinvented how to create ongoing narrative in a live service game, using a combination of choreographed NPC conversations and the occasional cut-scene, a soapy plot develops from week to week, complete with twists, heel turns, and Saturday morning cartoon cliffhangers.

We've seen major characters killed off, big bads come and go (or have they?), and finally had the sense that the guardians are actually part of an evolving universe. And it's working: keeping players interested in what's happening rather than just grinding for god-tier weapons. It also helps that the mix of matchmade activities, exotic quests and hidden missions has been refined to the point that any variance in quality is way less wild than it used to be.

And if you'd rather not pay at all, there's still an incredibly robust game entirely for free, including endgame content such as the Vault of Glass raid or the Trials of Osiris elimination mode. The only reason *Destiny 2* isn't even higher here is that the PVP side of the game has been neglected to the point of abandonment.

30 DEEP ROCK GALACTIC

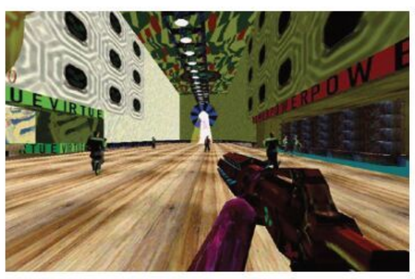
RELEASED 2020 | **LAST POSITION** New

Robin: For me this is quietly the most exciting co-op shooter in years. There's so many parts of it I want to talk about. Like its incredible procedural generation, churning out fresh, fascinating, and frequently beautiful levels every session. Or the satisfaction of working together to build, dig, and demolish your way to success. Or the way it makes managing light a core part of the experience in a way that adds so much drama to exploration. Oh no, I've run out of words again.

29 CRUELTY SQUAD

RELEASED 2021 | **LAST POSITION** New

James: A monstrous immersive sim, a game held together with duct tape and bad vibes. As a gig economy assassin killing men who pose a threat to a higher order of immortal CEO gods in a hypersaturated mess of jagged polygons and screaming textures, it's difficult to not feel bad. But using my guts to grapple up to a sniper nest above the Cancer Megamall? This is a shit jawbreaker with a dense pleasure chemical core. *Cruelty Squad* isn't cruel. It's just honest.



28 HUNT SHOWDOWN

RELEASED 2018 | **LAST POSITION** New

Jacob: You might be wondering why *Hunt: Showdown* has only now made its way into our Top 100, many years after it first launched. The reason being this PvEvP shooter has only gone from strength to strength in 2021, incorporating steady updates, improvements, and, finally, a new and immeasurably entertaining new map.

27 ROCKET LEAGUE

RELEASED 2015 | **LAST POSITION** 46 ▲

Rich: I've literally spent 100 days (2,400 hours) of my life playing this. Some of that would have just been the game idling but... wow, time to rethink my life choices. A perfect game, and has been since launch: once the controls and rhythm get their hooks in, you'll never look back. Put it on my gravestone: my name was Richard Stanton, and I drove a rocket car.

26 STARDEW VALLEY

RELEASED 2016 | **LAST POSITION** 52 ▲

Mollie: The recent 1.5 update turned an already great game into an excellent one. The addition of tons of late-game content and quality-of-life improvements has made owning a farm, marrying a reformed alcoholic and owning a small army of truffle-sniffing pigs better than ever.

TOP 100 2021

25

INTO THE BREACH

RELEASED 2018 | **LAST POSITION** 19 ▼

Rich: This almost feels like the isometric strategy genre distilled down to its purest drops. A game all about precision planning, the huge number of combinations you can wring out of apparently simple abilities, and quickfire playthroughs that always feel different. I don't have much appetite for the grander turn-based strategy games any more, purely because of time, and this is the perfect replacement.

Evan: It's surprisingly grim! Reminds me of Evangelion. This definitely isn't the kind of mecha anime where everyone goes out for milkshakes after defeating the great evil.

24 PERSONA 4 GOLDEN

RELEASED 2020 | **LAST POSITION** No change

Mollie: No JRPG has ever quite matched the energy *Persona 4 Golden* brings, and no game has ever led me to be so deeply attached to a ragtag group of teenagers and their terrifying bear mascot.

Morgan: Yeah, *Persona 5* has the style, but *P4* has the heart. I haven't played in nine years and I still can't get that damn Junes song out of my head.

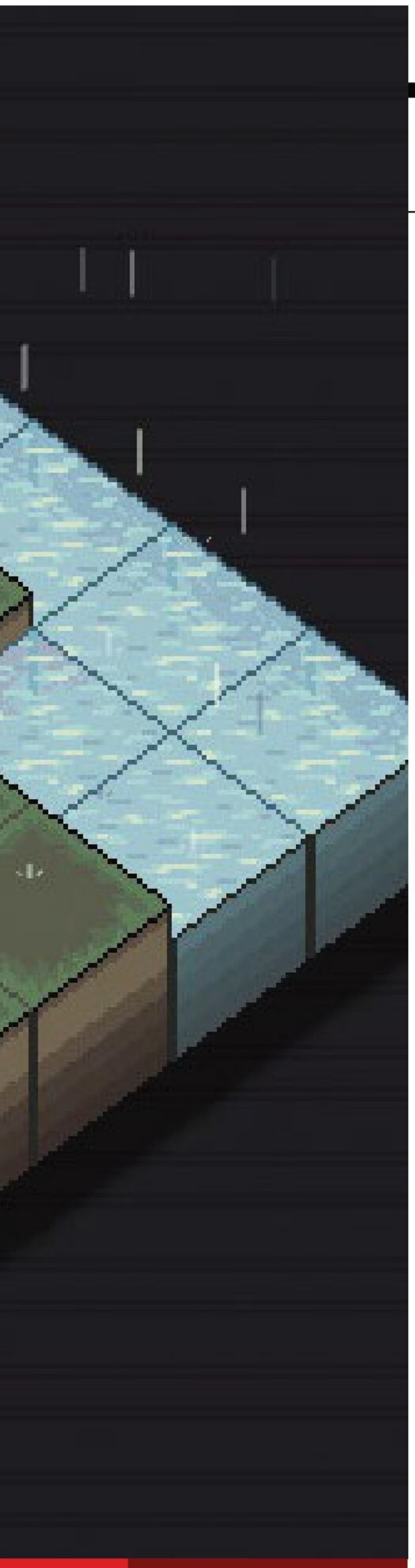
Phil: Filled with questions like "What do these bizarre murders say about society?" and "Why is there a talking bear suit?"

23 TOTAL WAR: WARHAMMER 2

RELEASED 2017 | **LAST POSITION** Re-entry

Jody: Unlike other *Total War* games, the things I remember from *Warhammer* happened on the battlefield. As mad-science ratmen I've killed an elf queen then dragged her corpse away under arrow-fire, and as vampire pirates I've summoned a ghost ship to drop on the proud warriors of Ulthuan. I did that as an undead opera singer named Cylostra Direfin, who pronounces her surname as 'dear-fah'.

The fantasy setting makes *Total War* ridiculous and extravagant. It's great not just because I remember highlights from multiple campaigns, but because the gonzo factions make multiple campaigns worth playing. The expansions and the way each game can be connected builds on that, meaning the best *Total War* keeps getting better.



22 HALO: THE MASTER CHIEF COLLECTION

RELEASED 2019 | **LAST POSITION** 41 ▲

Nat: Every weekend, for the past year, I've been jumping on for a bout of *Halo 3* multiplayer like it was 2007 all over again. There's never been a shooter quite like *Halo*, and after more than a decade away, its uniquely chaotic sandbox arenas still feel as fresh as ever – whether that's a tense slayer match on Blackout, or one of many absurd Forge maps folks are playing on the collection's new server browser.

With the *Master Chief Collection* now on PC in its entirety, 343's collection has proven itself more than just a fun throwback. It's a love letter to FPS fans – letting you dive into more than a decade of *Halo* history in a single matchmaking playlist, or revisit Bungie's truly stellar campaigns in both original and remastered forms. I may not be a fan of 343's own additions, but you can't deny the studio's done a hell of a job.

Wes: I want to thank whoever at 343 brought back *Halo 3*'s Rocket Race playlist, a mode I sank hours into more than a decade ago and still love with all my heart. A custom game browser is in the works, and once it's live, I expect classic *Halo* CTF to outlast the heat death of the universe.

PERSONAL PICK

Jody Macgregor

DAWN OF WAR – DARK CRUSADE

Still my favourite RTS thanks to a paint-the-map campaign where structures remain where you left them. You return to contested ground to find your defences still standing, ready to serve again. And the sync-kill animations make zooming in on combat a treat.

PERSONAL PICK

Phil Savage

GUILD WARS 2

Still secretly one of the best and most generous MMOs around, and one that could teach most live service games a lesson. From battle passes to update cadence, *Guild Wars 2* has already solved most of the problems that other GAAS developers are still trying to figure out.

21 RAINBOW SIX SIEGE

RELEASED 2015 | **LAST POSITION** 25 ▲

Evan: Folks, this is how you operate a multiplayer game. *Siege* gets four major updates a year like clockwork, adding new operators who often scramble the meta. But as it's expanded, *Siege* has simultaneously rethought some of the game's biggest systems alongside all the new additions, anti-toxicity measures, and overhauled characters. A testament to good production practices, careful roadmapping, and the insane effort it takes to maintain a popular game.

20 YAKUZA: LIKE A DRAGON

RELEASED 2020 | **LAST POSITION** New

Phil: This marks the series' transition from arcade brawler to JRPG, and swaps out the stoic long-time lead Kiryu for an entirely new ex-Yakuza – an endearing goofball who can't help but wear his heart on his sleeve. It's still everything you expect from a *Yakuza* game: a lengthy main story that's filled with twists and turns, numerous sidequests that range from wacky to absolutely absurd, and a whole host of minigames that offer fun diversions to pursue as you explore.

19 UMURANGI GENERATION

RELEASED 2020 | **LAST POSITION** New

Nat: Loud, raw, angry. An anti-colonial protest wrapped in *Jet Set Radio* and Evangelion. Where other games fret over whether they're seen as 'political,' *Umurangi* embraces it.
Jody: The *Macro* DLC really completes *Umurangi Generation*, with bigger levels to photograph and rollerblades to get you around them.

18 DOOM ETERNAL

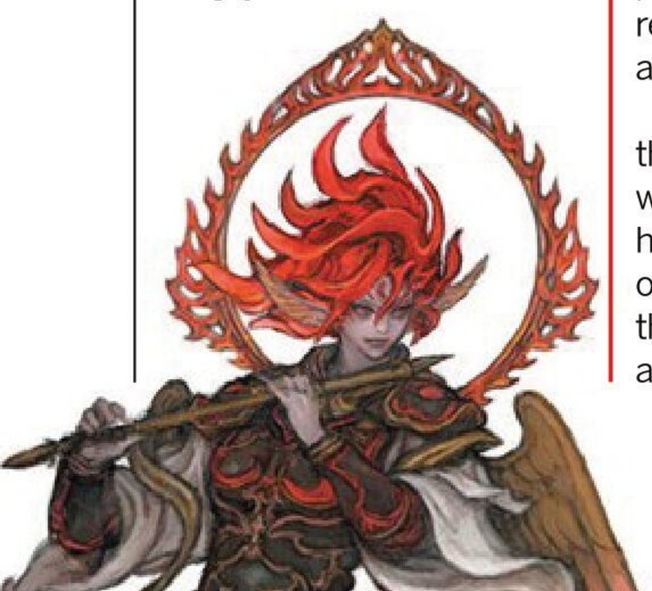
RELEASED 2020 | **LAST POSITION** 14 ▼

James: This was already the most intense shooter ever made, but *The Ancient Gods* expansions complicate the swirling demon chessboard even further. There's a demon you exorcise from other demons with the microwave beam. A huge hammer for turning a school of imps into paste. And you kill a couple of gods, no biggie.

17 FINAL FANTASY XIV

RELEASED 2013 | **LAST POSITION** 21 ▲

Steven: *FFXIV* takes so much of what is good about *WoW* and couples it with an emotionally-charged story, gorgeous visuals, and some of the best goddamn music ever scored for a game. There's so many MMOs, but *Final Fantasy XIV* is the one you should be playing.
Nat: There's no better game for roleplaying as a gay cat.



16 HOLLOW KNIGHT

RELEASED 2017 | **LAST POSITION** 8 ▼

Robin: I replayed this slick, atmospheric metroidvania only recently, and found myself utterly wowed all over again. Despite its tiny team, it's grandly ambitious, in its own way managing to evoke some of the mystery, horror, and grandeur of the *Dark Souls* series. Like its diminutive bug protagonist, it at first seems unassuming, but reveals greater and greater multitudes as you explore, its world unpeeling layers like a big, dark... onion.

15 OUTER WILDS

RELEASED 2019 | **LAST POSITION** 9 ▼

Phil: A remarkable exploration game in which you've got just 22 minutes to explore a small, handcrafted solar system full of questions. At the end of your time, the sun blows up and you time-loop back to the start, with nothing except the information you've gleaned along the way. The way the solar system changes over the course of the loop encourages you to keep hold of certain discoveries in order to investigate more thoroughly, making for a compelling mystery box that's a joy to unpick.

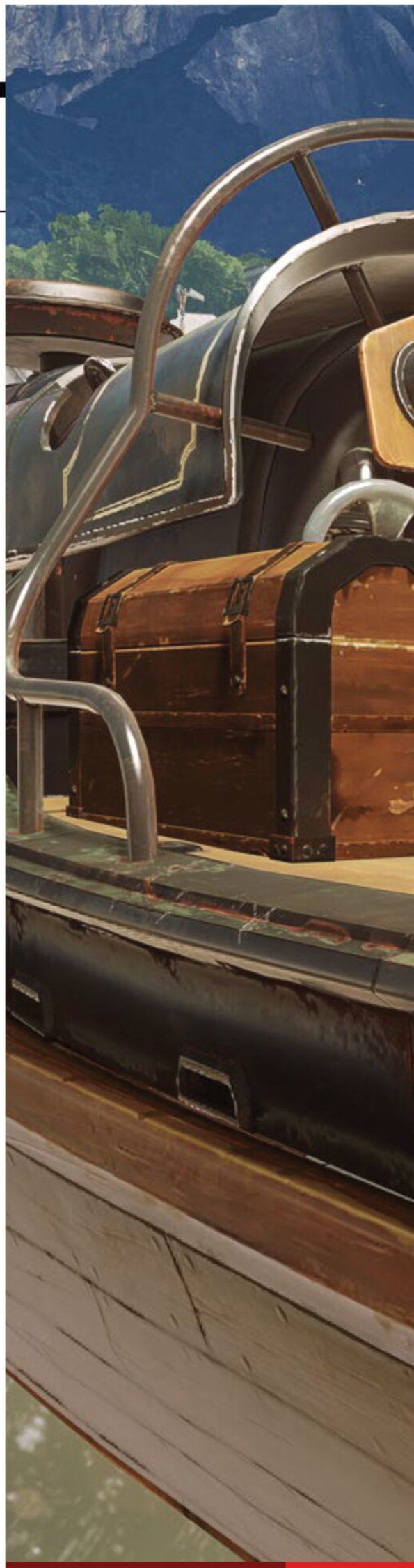
14 WILDERMYTH

RELEASED 2021 | **LAST POSITION** New

Rachel: One of this year's biggest surprises, and there was no doubt it would be placed somewhere in the top 15. *Wildermyth* is a fantasy adventure that manages to combine procedural stories spun from character-driven traits with procedurally generated events, the end result being a game with enough anecdotes that you could write a book.

Your decisions can dramatically affect the story, like if the rogue falls in love with the archer, if the warrior will ever fulfil her lifelong dream, whether characters die on the battlefield or retreat, losing a limb in the process. Your heroes become bruised and scarred as the campaign progresses, reminders of mistakes you've made on the battlefield.

Characters can have children who can then join the party, and you can even bring old retired characters back for a new campaign. In this way, *Wildermyth* feels like you're weaving a mythological tapestry of heroes and their stories, not just ticking off a campaign checklist. Depending on the difficulty you choose, the game will adjust its story: a tougher, crueller campaign will be complemented with a darker tale – it's pretty incredible how the game can adapt like that. It's as close as you can get to the feel of a homebrew tabletop RPG, and that's pretty special.



13 DISHONORED 2

RELEASED 2016 | **LAST POSITION** 7 ▼

Phil: Aside from being the best stealth game of the 2010s, what makes *Dishonored 2* remarkable is that, however you decide to approach its levels, it always has a response. When I kill my target in the opening mission, I later hear his goons announce that he's dead. On a second attempt, I kill him and hide his body in an area the guards can't access – something the game never asks me to do. And yet it apparently knew I might try, because this time the goons announce that he's missing instead. It's a small example, but later on this same attention to detail – this anticipation and extrapolation of the player's agency – applies to some really big, dramatic moments.

12 XCOM 2

RELEASED 2016 | **LAST POSITION** No change

Robin: We've written about Firaxis' modern strategy classic more times than I've lost soldiers, but there's a good reason for that. It's still the absolute gold standard of turn-based strategy on PC, a sprawling tactical puzzle that pokes at your grey matter, but crucially also tugs at your heartstrings, as you love and lose squad members. Add in the expansive *War of the Chosen* DLC, full of weird villains and technology, and you've a near endlessly replayable package. The thriving mod scene gives it even more life – including the ever-popular Long War, which turns the campaign into an even more brutal feat of endurance while cranking up the detail.

Surely we're past time for an *XCOM 3* now? Come on Firaxis, get a move on – *Chimera Squad* was barely a snack .

11 DIVINITY: ORIGINAL SIN 2

RELEASED 2017 | **LAST POSITION** 2 ▼

Wes: The best traditional computer RPG of the last decade, *Original Sin 2* remarkably manages to succeed on every axis as an RPG. Its main quest is exciting and intricate, each of its premade heroes has unique stories worth experiencing, the world is crammed full of sidequests, and you can approach most problems however you want, including killing every NPC in the world like a complete psycho. Hell, if you played it in 2017, play it again: Larian has spent a couple of years improving it.

10 VALHEIM

RELEASED 2021 | **LAST POSITION** New

Chris: There are no quests in *Valheim*, no characters, no main storyline. But every journey I take, whether it's to fight a boss or reach a new continent or just to gather berries, feels like a bigger and bolder adventure than many triple-A RPGs. The open world is fascinatingly beautiful despite throwback visuals and the danger of the wilderness is offset by the cozy and comforting feel of coming home to my cheery little wooden fort. *Valheim* cleverly plays with survival systems, too – food and cooking remain absolutely vital, but you'll never starve to death so gathering never feels like a joyless grind. And for an Early Access game, it never feels like anything is missing, just that more could be added.

9 THE WITCHER 3

RELEASED 2015 | **LAST POSITION** 4 ▼

Andy K: While I love the overarching story in *The Witcher 3* and its DLC, it's the slower, quieter moments in-between when the game really sings for me. When it's just me and my horse on the open road, riding between villages, exploring ruins, picking up random quests, and getting tangled up in peoples' lives, I'm never happier. It's like a wandering samurai simulator. And the fact that a simple job pinned to a noticeboard can spiral into a wild, unpredictable, hours-long quest makes exploring this vividly realised world rewarding like no other RPG. This is a rare game where almost every sidequest, including the really small ones, is meaningful or interesting in some way.

8 MINECRAFT

RELEASED 2011 | **LAST POSITION** 48 ▲

Rachel: I am happy to see *Minecraft* get the epic list bump it deserves. With the *Caves and Cliffs* update this year, plus Mojang's work with RTX, and the number of charities and projects using it as a gaming force for good, it deserves a top 10 spot for sure.
Mollie: I punched my first block of dirt nearly 10 years ago, and I've been in love with *Minecraft* ever since. *Minecraft*'s versatility really lends itself to the game's longevity – after a decade, no two playthroughs have been the same for me, and I love that.
Rich: The game's community remains so vibrant and it seems like every week there are amazing new things to see, and Mojang continues to judiciously add to it.

7 SLAY THE SPIRE

RELEASED 2019 | **LAST POSITION** 5 ▼

Robin: The sheer number of imitators released in recent years is testament to the lasting brilliance of *Slay the Spire*. None have toppled the king. It's still the absolute tightest, smartest, and most fun to break roguelike deck-building money can buy.
Evan: When you pull off some clever combo (say, using the Mummified Hand relic and a series of Power cards to reduce the cost of everything in your hand to 0), the sensation of cascading effects is as potent as pulling the trigger on some viral TikTok Rube Goldberg machine. *Slay the Spire* puts game-breaking power within players' reach, but in turn drops tougher bosses and mini-bosses in your way. Few games match its purity of design.

6 DEATH STRANDING

RELEASED 2020 | **LAST POSITION** New

James: It may feel like some old-timey *Metal Gear Solid 2* nonsense at the start, but it rapidly evolves into an open-world hiking simulation about building an infrastructure co-op with strangers. I've given dozens of hours over to the cause, hauling materials to maintain our highways, dozens more to crawling up treacherous mountain peaks through blinding blizzards to create an efficient zipline network. All of it, shared with other people in their own game worlds for no tangible videogame reward other than knowing I wasn't the only one to benefit from the hard work. In a capitalist hellworld, it gave me hope, or at least a potent homebrewed chemical signal for coping.

Wes: *Smashes Like button 137 times*

Rich: There's simply nothing like *Death Stranding*, particularly in the context of the pandemic and how eerily its concept maps onto that. For all Kojima's excesses, and some frankly honking cutscenes, the experience of traversing this world is unforgettable. You genuinely feel part of something bigger. I can't get this wonderful game out of my head, parts of it will stick with you like nothing else.

5 RED DEAD REDEMPTION 2

RELEASED 2019 | **LAST POSITION** 3 ▼

Andy K: No videogame world has beguiled me quite as powerfully as *Red Dead*'s vast, atmospheric slice of the American West. Rockstar's Western epic is a game I frequently revisit just to do nothing: riding aimlessly around the wilderness, stopping to hunt, chat to fellow travellers, or poke around in old cabins. It's a game I like living in too. Moseying into Valentine to knock back a whisky at the saloon, grabbing a bath or a haircut, trying on some new clothes in the general store, then turning in for the night at the hotel. It's the best cowboy simulator ever made. I love the story (I've finished it twice), but just hanging out in that world is enough.

4 APEX LEGENDS

RELEASED 2019 | **LAST POSITION** 17 ▲

Nat: *Apex Legends* has always been good. Of the big battle royales, it's the best one if you just want to pick a good fight, blending solid gunplay and wild abilities with just the right amount of *Titanfall*'s hectic movement. But last year saw *Apex* truly come into its own as a confident successor to Respawn's wallrunner.

Olympus is far and away the game's best (and prettiest) map to date. Arenas provide a tense, tactical, 3v3 alternative to battle royale. And the game's cast has only gotten better and better, particularly with the long-overdue addition of Scottish people to the roster.

In 2021, *Apex Legends* isn't just a good battle royale. It's probably the best competitive shooter you can play today.

3 CRUSADER KINGS 3

RELEASED 2020 | **LAST POSITION** New

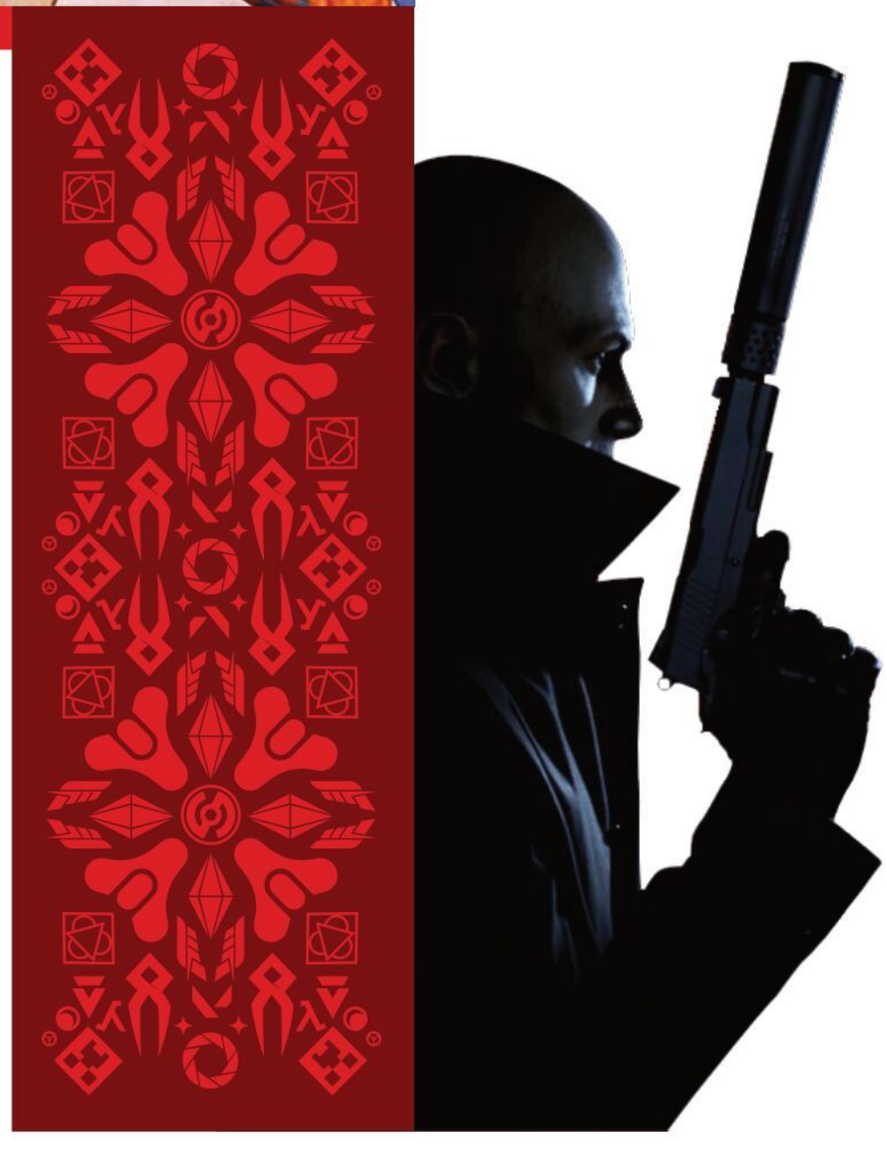
Fraser: Simply the best strategy game around. And it would probably be the best RPG if it wasn't for *Disco Elysium*. Everything that made *CK2* so great for nearly a decade is here, but better integrated, more refined, and improved by a whole bunch of new systems that make this sequel feel like more than a repeat.

It's huge and dense, but after just a few hours you'll walk away with enough stories to fill a book – like the time you walked into your bedroom and found a courtier having sex with your shoe, or when you 'accidentally' lost a child in the woods when you realised they were about to cause a succession crisis. Thanks bears!

2

HITMAN 3

RELEASED 2021 | **LAST POSITION** New



Fraser: Now that IO Interactive has completed its ambitious world of assassination, you can play all three *Hitman* games in a single package, giving you a lifetime of elaborate murders to pull off. It feels like an endless vacation where you occasionally top someone. A trip to a gaudy Dubai skyscraper one day, then off to an Argentinian winery the next, each of them bursting with potential for mischief. *Hitman 3* is an exceptional game in its own right – not least because it contains a spot-on Agatha Christie mystery where you get to play the detective – but the real selling point is getting to play the entire trilogy with all of the enhancements. It's a great excuse to revisit Sapienza for the hundredth time.

Phil: On its own, *Hitman 3* probably wouldn't be as high on this list. But *Hitman 3* as a way to access the entire trilogy – including the ever-expanding selection of escalation contracts and time-limited elusive targets – is essential. Each game has its own personality. The first is IO rediscovering its aptitude for creating intricate stealth sandboxes, and getting bolder and more experimental as it goes. *Hitman 2* ups the scale, with some of the largest levels in the series' history, each packed full of things to try. *Hitman 3* is tighter and more focused, but builds on the previous games for a confident finale full of memorable scenarios. Each mission is ridiculously replayable, and this package brings together more than 20 of them. You could play this for years and never run out of new things to try.

James: If aliens ever invade Earth and demand to know what we humans call 'videogames,' I will give them *Hitman 3*. It has everything: espionage, geopolitical intrigue, slapstick comedy. The trilogy represents the best of game design too, working as a simultaneous sandbox and teacher. I've played the same levels dozens of times, reverse-engineering guard patrols, NPC AI behaviours, and how my weapons and tools interact with it all.

While the first run through a *Hitman* level is typically overwhelming, the options endless and threats leading to more improvisational playthroughs, my 20th go at The Dartmoor Manor with nothing but a shotgun went off without a hitch. You'd think I'd enabled cheats, the way I slipped through sightlines and manipulated the field with my shiny coins to point-blank five guards in an escalation without getting spotted. There's a reason Agent 47 is an emotionally stunted bald man: because we need someone to look up to.

Andy K: This is some of the best stealth in the history of videogames, with levels that are big, complex, and pulsing with life and detail. It's *Hitman 3*'s Berlin that really steals the show for me – a crowded warehouse rave where the tables are turned and hitmen come after you. This is a neat switcheroo, and trying to kill these guys with eyes everywhere is a challenge like no other in the series.

TOP 100

2021

1

DISCO ELYSIUM – THE FINAL CUT

RELEASED 2019 | **LAST POSITION** No change

Evan: A richly detailed roleplaying game about a deeply human shared experience: losing your wallet.

Encyclopedia: The creation of an Estonian studio who'd never made a videogame before, *Disco Elysium* is a revolutionary detective RPG set in the imaginary city of Revachol, and in particular its impoverished dockside district of Martinaise, whose politics serve as a mirror of our own.

Drama: Good sire, you neglect what's most important. *Disco Elysium* gives your skills a voice, and the more points you put in them the more likely they are to interject with their own observations, whether helpful (like when I point out a character who may be lying to you), or unhelpful (like whatever nonsense Electro-Chemistry is about to inflict upon us).

Electro-Chemistry: You both forgot what really matters. *Disco Elysium* open-palm slams you right into the poetic streaming consciousness of a shambling maniac who broke his brain with a whole lot of drugs. Yummy, yummy drugs.

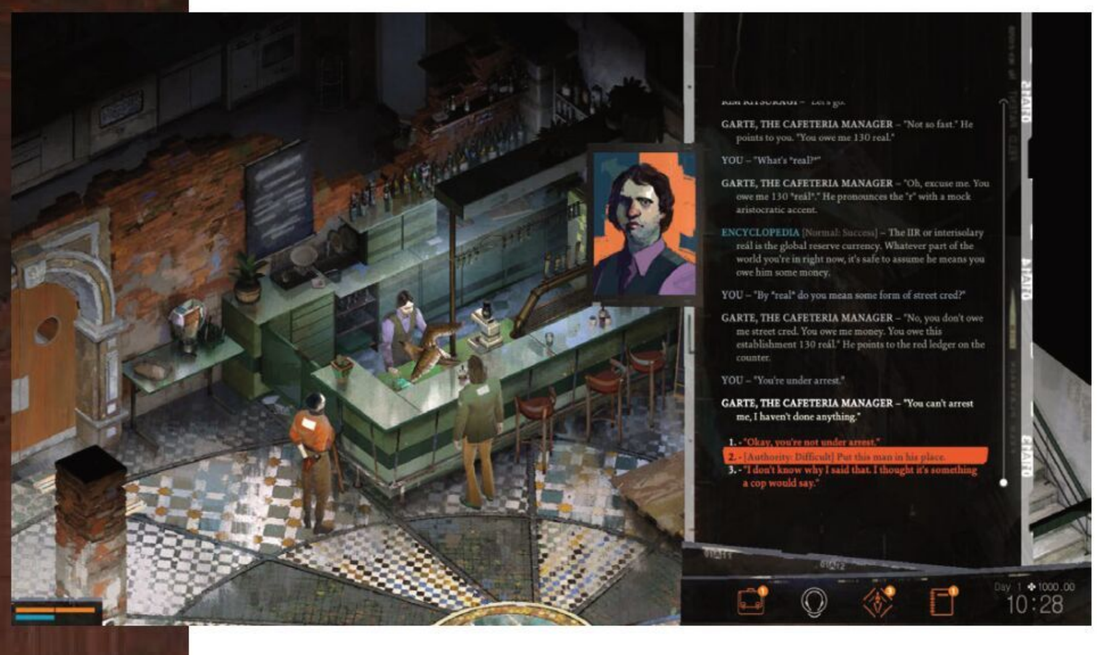
Wes: It's a marvel that *Disco Elysium* manages to make the warring voices of your brain funnier, more compelling companions than typical RPG followers. The way your skill points affect how active they are in conversations and how their dialogue helps you understand your character and the world around you – it's just brilliant. I can't think of another RPG that makes bad dice rolls so much fun, either. I never felt the urge to savescum in *Disco Elysium* because there was always a clever bit of dialogue waiting for me, even when I literally fell on my ass.

Evan: Exactly: the way that those different brain voices passively interject based on how much you've developed them – and the fact that they can still betray you and offer bad advice! – is genius and reflective of what it feels like to be human. A person with 'Level 10 Empathy' can still make a bad decision by listening to that empathy at the wrong moment. In this, I love how much *Disco* cares about what I don't say. A numbered list of dialogue options shouldn't be a series of cabinets you rummage through to get the stuff inside. What you say affects the world and reflects who you are.

Fraser: *Disco Elysium* was close to the perfect RPG when it first launched, but miraculously ZA/UM has managed to make it even better. In a huge free update, the studio added full voice acting, something I didn't feel that was missing until I heard it. Even your internal monologue gets the treatment, with a superb performance from Lenval Brown giving your skills and inner thoughts even more personality. As a bonus, there are a bunch of political vision quests, too, which serve to create a climax for your journey of self-discovery. As challenging as some of the subject matter is, it's an unmissable game.

Andy K: Still unbeatable. Every RPG I've played since, I've thought to myself: "I wish this was more like *Disco Elysium*." The sheer variety of ways to shape your character – and how people in the world react so specifically to what you've moulded this grotesque lump of cop-shaped clay into – makes it a role-playing experience like no other. I can't remember the last time I was so completely consumed by a game's setting and atmosphere either. I'm listening to the music from the Whirling-in-Rags (the extra dreamy 12pm version) as I type this, and I want to be back there, interrogating burly dockworkers, singing heartbreaking karaoke, and slowly piecing together what I did on my apocalyptic bender a few nights before. *Disco Elysium* is a truly singular game. There's never been anything like it, and there probably won't be ever again, even if ZA/UM makes a sequel.

I CAN'T THINK OF ANOTHER RPG THAT MAKES BAD DICE ROLLS SO MUCH FUN



Let's Kill Crunch

LET'S KILL CRUNCH

Meet the game makers determined to stop development from ruining lives.

By Jeremy Peel

KILL CRUNCH

Let's Kill Crunch

LEFT: Hinterland is only beholden to its players, "We're fortunate to have this."

RIGHT: Auroch has a long history with Games Workshop licences.

he games industry never stood a chance. Raphael van Lierop, narrative director of *Far Cry 3*, believes the medium inherited crunch from its parent industries – the expectation of overwork baked into software and filmmaking long before a programmer first managed to steer a pixel across a screen. By the time van Lierop joined a game studio in the early 2000s, burnout was considered best practice.

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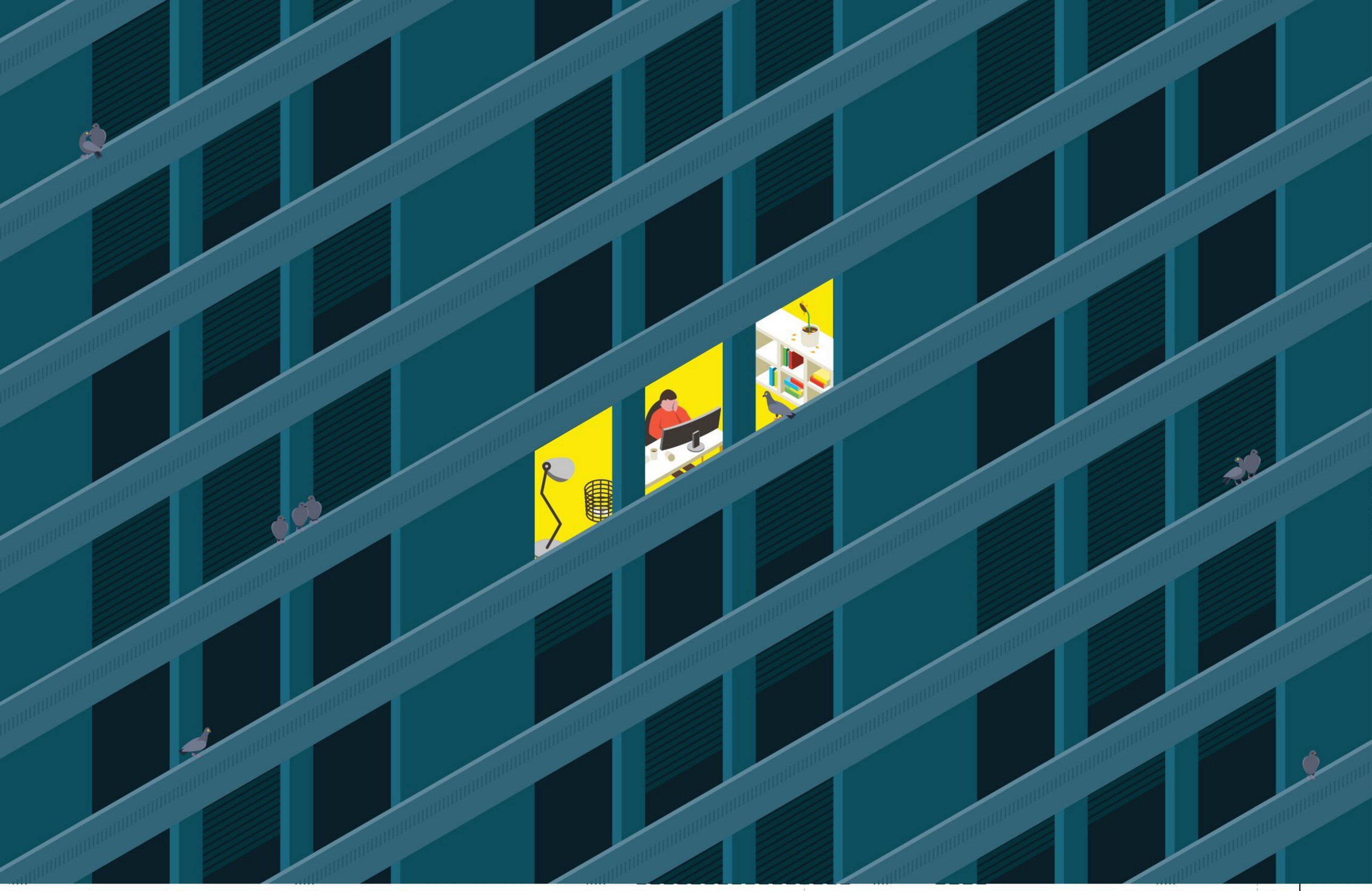


"We didn't at all associate these things with poor management or poor planning practices," van Lierop says. "We believed crunch was a necessary prerequisite to creating something exceptional."

It was only after a dozen years of 70 to 80 hour weeks, as van Lierop found himself putting his kids to bed only to turn around and drive back to the office, that he recognised an unhealthy spiral. "I recall a night in particular during a really heavy crunch period, my wife looking over my shoulder and reflecting that she didn't understand why I was making so many personal sacrifices for something that didn't feel that much like 'me'," he says. "I realised I'd never stopped to ask myself if this was something I'd wanted. Shortly after that game shipped I decided that I would never go back to another AAA studio, and Hinterland was largely born from that decision."

Hinterland, which develops top-rated Steam survival game *The Long Dark*, is part of a new wave of studios dedicated to ending crunch. Though divided by continents, cultures and genres, they face shared problems – and offer a glimmer of hope that the rest of the industry can one day find similar solutions.

BAD ROMANCE

Overwork is not exclusive to AAA studios. Famously, *Stardew Valley* developer Eric Barone spent four years in self-imposed crunch – >>

HINTERLAND IS PART OF A NEW WAVE OF STUDIOS DEDICATED TO ENDING CRUNCH

TRIPLE YAY *The big-budget studios changing things for the better*

DOUBLE FINE

Tim Schafer has committed to finishing *Psychonauts 2* without crunch, and new owner Microsoft has backed him.

OBSIDIAN

'Death marches' are rare at the venerable RPG studio, which explains how it's kept hold of its core of veteran staff for such a long time.

BUNGIE

Halo 2's brutal development led the developer to change its ways. *Destiny 2* was made without enforced crunch, and holiday time is now mandatory.

Let's Kill Crunch

LEFT: "It's just games," Nijman says. "Work shouldn't have to be like this."

RIGHT: AAA projects are complex, says van Lierop, and therefore mistakes have a high cost.

» averaging ten hours a day, seven days a week. "We still really romanticise the solo dev working in their basement for years who shipped a huge hit," van Lierop says. "The games press plays a big role in this. The issue is that for every single indie hit that was made under those extreme conditions, 100 or 1,000 failed miserably and those developers ruined their health, their finances, and their relationships chasing a false dream."

For Vlambeer, the two-man team behind *Nuclear Throne* and *Luftrausers*, the dream was realised – but designer Jan Willem Nijman nonetheless regrets the damage done during the process.

"I burnt out a few times," he says. "The launch of *Nuclear Throne* was a major one. Recovery means not working for an extended period of time, being a barely functioning human, and then many months, if not years, to slowly get back to normal. On top of that, I lost some of my 'elasticity' – I can't push myself remotely as far anymore without quickly burning out again."

More recently, during the development of *Minit* and *Disc Room* – two critically-acclaimed games Nijman made with a variety of collaborators for Devolver Digital – he took care to prioritise life over work. "If it needs more time, it needs more time," he says. "If it means that the game needs to be a bit smaller, that's also fine. For us, making things leisurely is just as fast as making them under stress. In fact, I am convinced that by living a fuller life you can be more creative and are more open to inspiration."

"FOR US, MAKING THINGS LEISURELY IS JUST AS FAST AS MAKING THEM UNDER STRESS"

AUROCH & A HARD PLACE

But what happens when the scope and timeline of your game is decided by an outside force, like a publisher? It's often midsized studios that are trapped in the vice – accepting high-pressure projects in order to make payroll. Auroch Digital, which now makes the space agency strategy game *Mars Horizon*, spent several years bouncing between tabletop-related games like *Chainsaw Warrior*, *Ogre* and *Achtung! Cthulhu Tactics*. In its early days, developers weren't consulted when deals were made.

"The first two projects that I worked on were disasters, from a production point of view," partnership and production manager Nina Collins explains to me. "The team would have a contract put in front of them saying 'We're making this game in 12 months, for this much money'. Both of those projects were very much firefighting, and that's what led to them having crunch – we had overpromised on quality, on scope, and we didn't have enough time or budget. That was when, as a company, we said, 'This isn't sustainable.'"

In the years that followed, Auroch started tracking the time staffers spent on tasks, in and out of normal working hours. "What you get with that data is the hidden work," creative producer Peter Willington says. "And if you can't track the hidden work, how in the hell can you make good estimates for future projects? Production is something that happens before you've signed the contract."

Beyond making more sensible promises to publishers, Auroch now schedules its weeks differently too – planning work for only four days out of five, leaving extra time for meetings. "You try and pull developers who are under pressure

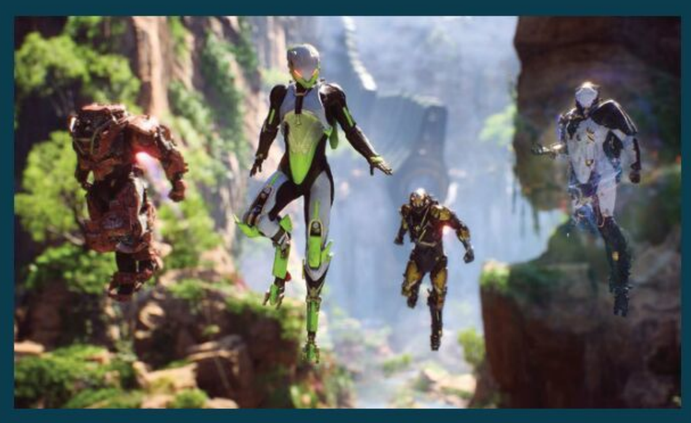
DARK AGES *The most notorious examples of games industry crunch*

EA SPOUSE

"My happy, supportive smile is running out." The 2004 open letter from the anonymous partner of a game dev triggered multiple lawsuits against EA.

ROCKSTAR SAN DIEGO

The *Red Dead Redemption* studio was the subject of a similar letter six years later, which detailed mismanagement and overwork.



BIOWARE'S ANTHEM

A Kotaku report said many staff had taken doctor-mandated stress leave after working on the doomed jetpack shooter.

and crunching into a discussion," Collins says. "Their stress levels go to the max. And the problem is that they don't view meetings as part of development. And in that meeting, as a group, you might find out that you can cut 20 days off the AI."

Willington knew these measures were working when, on launch day for *Dark Future: Blood Red States*, the team was finished coding by lunchtime – early enough to pass around a bottle of whisky. "I was very emotional about that," he says. "That was the pivot point."

LATE NIGHT CHAT

Beating crunch takes soft skills as well as spreadsheets, however. As soon as Mike Bithell made enough money to start employing people, he pledged that they wouldn't crunch. But sticking to that principle has meant actively catching staff in the act of working too hard.

"Still to this day, I have to check if they're working late," the *John Wick Hex* director told me at Yorkshire Games Festival last year. "They've worked in environments where that's expected of them, or often they just really love their job. They'll think that's the way to get into my good books to get a promotion or a pay rise. It's my job as a boss to keep reminding people that it's not how they impress me."

Auroch has encountered the same problem. "No matter how many times we tell people that we are anti-crunch, when they're first starting a new job, people still feel like they're trying to prove themselves," Collins says. "It's proving themselves in the wrong way – because there's historic stuff from the industry. And it's really important to stop people doing that, because they're going to run themselves into the ground doing something that's completely unnecessary."

Traditionally, many game studios have presented crunch as optional – but the consequences of opting out have been severe. "It was never explicitly stated, but I think everyone knew that the 'nine to fivers' were not the ones that would get the good promotions, because they couldn't possibly be that dedicated or ambitious," van Lierop says. "What I want to hear from studio leaders is, they never have to talk to their staff about work-life balance or having healthy work habits because they all know it's expected of them. At Hinterland, if we have to remind team members not to work too hard, it's a failure of our leadership."

Nijman believes it's important to lead by doing. "If you're the boss who's working late hours, you're just overburdening yourself and setting an unhealthy example."

BOSS FIGHT

It's this last point that has proven tricky to put into practice at some of the studios I've spoken to. Somewhat hypocritically, Bithell still works overtime, a fact his staff have called him out on. "We had a postmortem after we released *John Wick*, and the biggest piece of feedback from my entire team was, 'Mike works too hard,'" he says. It's an issue Bithell Games is addressing by bringing in extra producers.

"That's one of our objectives as a company," he says. "We may never get my hours down fully, but that's OK because I get to own the company. I get my name on the fucking front of the game. It's a very different thing when you're an employee, being paid hourly, and I can't ask for the same degree of devotion."

Auroch's last two games involved no crunch at all, but some senior staff do still put in the extra time. "We've had someone start that will hopefully spread that out," Collins says. "There's always more to be done, but we can proudly say we do not do crunch."

Let's Kill Crunch

"ALL THE DATA WE HAVE ON IT SAYS IT DEMOLISHES SOMEONE'S ABILITY TO PRODUCE WORK"

» At Hinterland, members of the team have crunched on three occasions: once to get *The Long Dark* through Xbox certification before reveal at E3; once to fix PS4 technical issues before the game hit 1.0; and once to get overhauled story episodes out before Christmas of 2018.

"It's no coincidence that these three instances all occurred around fixed external milestones," van Lierop says. "Timing commitments we'd made to our partners or our players that we felt we couldn't break. Our solution since has been to avoid making public commitments like that, and as much as possible to avoid lining up significant launches of new content with new platforms."

QUALITY OF LIFE

It's notable that *The Long Dark*, *Mars Horizon*, *Minit*, and *Disc Room* are all reviewed as 'Very Positive' on Steam – the highest honour in the field of player satisfaction. Developers may worry that forgoing crunch will lead to unfinished games, disappointed critics, or frustrated fans waiting for updates. But all of the developers interviewed for this article believe their games have turned out better since turning their backs on overwork.

"The first game I worked on [at Auroch] turned out fine, but no one was like, 'This is great,'" Willington says. "We're making our best-looking, best-playing games since we stopped doing this stuff."

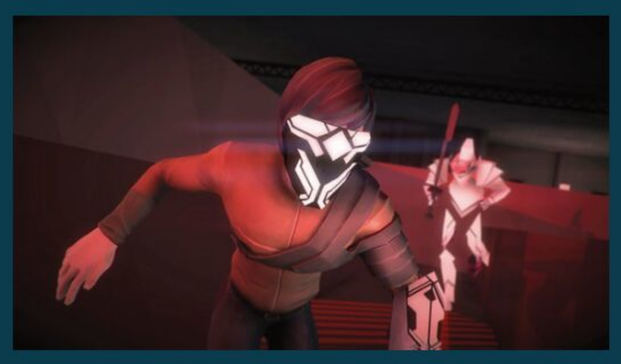
"Even if you're a cynic, crunch is a bad idea," Bithell says. "All the data we have on it says it demolishes someone's ability to produce work. It's really just common sense. You have to understand what the biological limitations of being a human being are. You can't work crazy hours, and the research all backs up that position."

"It's generally understood that work done under extended crunch conditions is often not good or high-quality work," van Lierop explains. "Why would you want that? You're burning your people out to get worse results and eventually lose them, which just puts more burden on the next batch. I don't think the results are compromised by avoiding crunch. I think they are definitely compromised by depending on crunch to get your games out the door."

BLOOD DIAMONDS

The question, then, isn't whether avoiding crunch works. It's whether the rest of the industry will follow suit. Bithell's established reputation allows him to stand up for his team in publisher negotiations, while Auroch's cashflow means it can afford to delay milestones – both privileges that a new indie team may not have at their disposal.

Larger developers, meanwhile, have less incentive to end crunch. "They can pull in another coder that's just as good," Collins says. "We couldn't afford to lose those people, so we had to sort it out." What's



LEFT: Bithell's breakthrough hit *Thomas Was Alone* was made purely in his evenings and weekends.

RIGHT: *Volume* is an underrated Bithell Games stealth sim.

more, AAA studios are often beholden to shareholders – who can be much less understanding than players. "Hitting quarterly revenue targets becomes the measure of business health, versus the health of the teams or the quality of the products," van Lierop says.

But, as we've seen before, players can influence whether or not developers ruin their health and home lives, even at the highest levels – by voting with their wallets. "What we need in games is more of a 'blood diamonds' concept – societal pressure that acknowledges the human cost of a product should be part of how we measure its value," van Lierop says. "Until consumer sentiment changes and people stop buying games made under unhealthy working conditions, nothing will fundamentally change around crunch."

"Even if it would make no difference for the final product, the fact that it makes people unhappy, unhealthy, and takes so much time off their lives is more than enough reason to end the whole practice once and for all," Nijman says. "Instead of saying, 'Not destroying the Amazon Rainforest is good for the economy,' people need to realise that we shouldn't be destroying the Amazon anyway."

Play *Minit* today, and you'll find it filled with places and people the team encountered while out living their lives, not staring into a monitor. "Spending time not working is important to fuel that," Nijman explains. "There's a quote floating around somewhere that there are two types of poets: those who try, try, try and squeeze and eventually get their words on the page, and those who live life and sometimes poetry happens. I want to keep designing games like that second group of poets." ■

FREE-RANGE GAMES *The best work of the devs we interviewed*

MARS HORIZON

Basically your own NASA control room. Auroch's management sim is friendlier than *Kerbal* but deeper than space itself.

MINIT

In this *Zelda*-like adventure, your lives last only 60 seconds. It's a typically intense and giddy concept from Vlambeer's Jan Willem Nijman.

THE LONG DARK

"Your endless struggle to keep the Grim Reaper at arm's length is enormously rewarding," said PC Gamer's Andy Kelly of Hinterland's chilly survival game.

JOHN WICK HEX

Put together with the input of Hollywood fight choreographers, this is turn-based tactics at its most stylish.

Genshin Impact

HOLD BRACE

FOR ALL

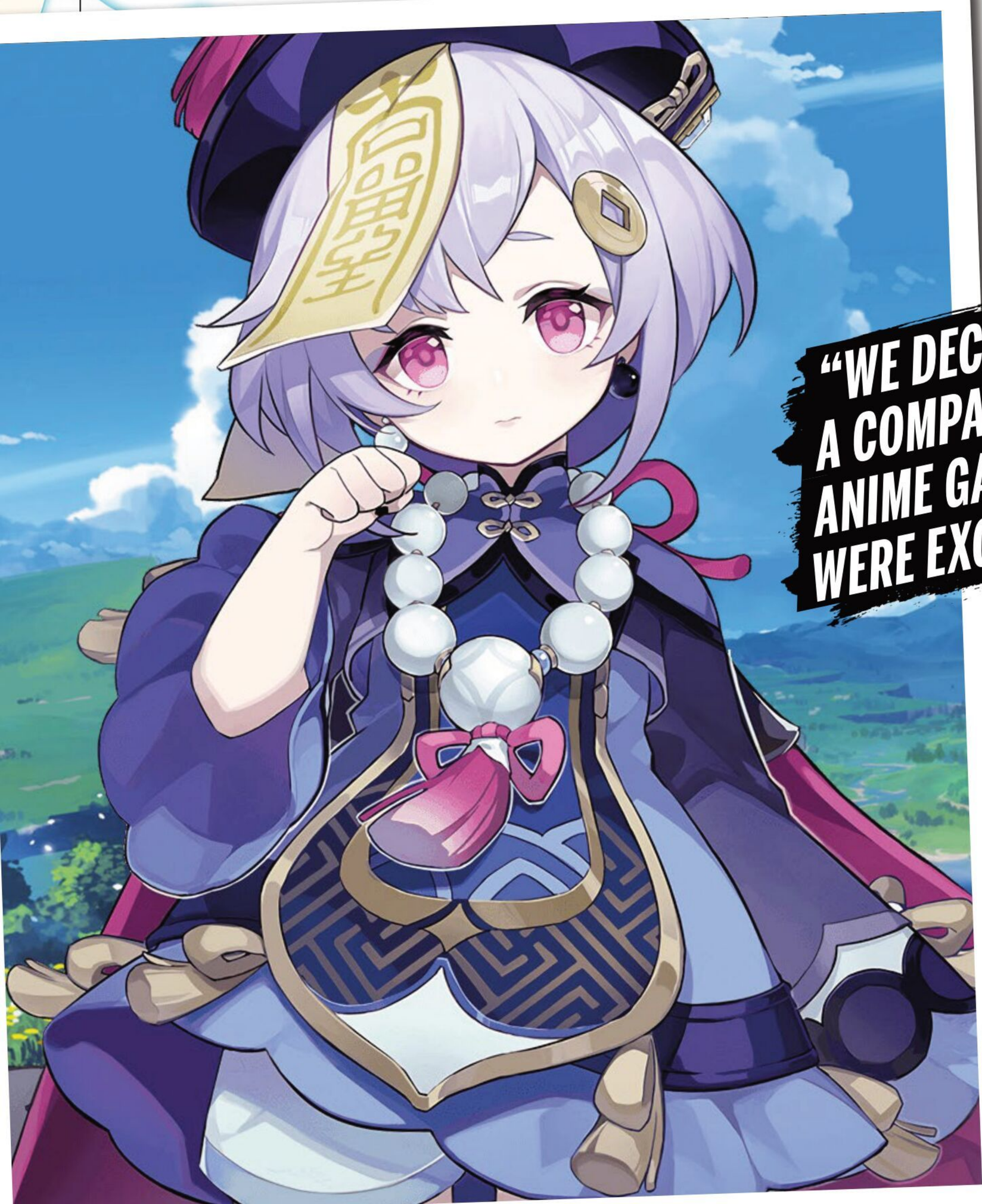
How Chinese free-to-play RPG GENSHIN IMPACT conquered the world.

By Steven Messner

Genshin Impact

When *Genshin Impact* launched in September 2020, no one saw its huge success coming. It was obviously pretty, sure, but it was also easy to write off as another Chinese free-to-play mobile game filled with microtransactions and high-pitched fairy sidekicks. What wasn't apparent was how it would transcend the negative stereotypes, pulling inspiration from beloved classics like *Nier: Automata* and *The Legend of Zelda: Breath of the Wild* to create an RPG that manages to feel both nostalgic and innovative. Or how its developer, MiHoYo, would come to exemplify China's evolving games industry.

In the span of just a few months, MiHoYo became one of China's most prestigious gaming companies. And since its 2020 launch, *Genshin Impact* has raked in an estimated $874 million and still continues to pull in around $175 million a month – and that's just from mobile players alone. To put that in perspective, it took *Fortnite*'s mobile version nearly two years to cross the billion dollar threshold. *Genshin Impact* is not only fantastic, it's also the biggest global launch of a Chinese game in history. Not bad for a company that, just a decade ago, was made up of just three anime nerds who were fresh out of university.



"WE DECIDED TO CREATE A COMPANY TO MAKE ANIME GAMES THAT WERE EXCITING FOR US"

OTAKUS SAVE THE WORLD

If you started reading this and had to flip back to the front cover to double-check that this was still PC Gamer, I don't blame you. But don't be deceived by its roots in mobile games; *Genshin Impact* is a big step toward a future where games are free from the barriers of your chosen gaming platform. A future where big-budget open world RPGs look virtually indistinguishable between their PC and mobile versions. And all this started because MiHoYo's three founders, Cai Haoyu, Liu Wei and Luo Yuhao *really* love anime.

"Our inspiration was born from our passion for technology and [anime, comics and gaming] culture,

and we wanted to share this passion with the world," Cai tells me. "The other reason was we didn't see many anime-style games that really intrigued us, so we decided to create a company to make anime games that were exciting for us."

Traditionally a Japanese word for socially-incapable dorks obsessed with anime, Cai, Wei and Luo have turned 'otaku' into a badge of honour. It's baked right into MiHoYo's slogan "Tech otakus save the world".

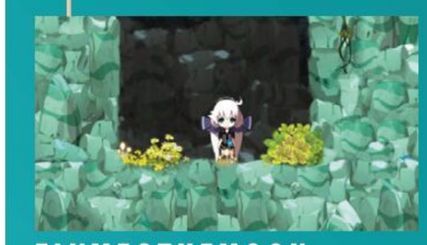
That emphasis on games for otakus, by otakus came to define MiHoYo's first few games. Before the company was even officially founded, the trio released *FlyMe2theMoon*, a simple mobile game where you control a cutesy anime girl with a jetpack, gliding through twisting levels to collect gems and stars. But even the release of MiHoYo's earliest mobile games like undead brawlers *Zombiegal Kawaii* and *Guns GirlZ* demonstrated two things: a shrewd awareness of what was popular in gaming (both games came out around the time that zombie survival games like *DayZ* were exploding) and a knack for killer art.

Early on, Cai explains, MiHoYo found success by sticking to what it knew. Instead of following the trend of a lot of popular Chinese free-to-play games, which were competitive but also flagrantly pay-to-win, MiHoYo went in a different direction. It gambled everything on otakus' thirst for anime girls. "In the early years of our company, we sought to make products for a rather niche market and user demographic," Cai explains. "Our team was also still very small at the time, so we narrowed our focus to a specific player base."

During the China Games Industry Annual Conference in 2017, Liu described this approach as "paying for love". The philosophy was simple: if you make the girls cute and

ABOVE: There's even the option to play co-op, though it's relatively limited.

WAIFOGRAPHY *A quick overview of MiHoYo's previous games*



FLYME2THEMOON 2011
A simple, cutesy mobile game similar to *Flappy Bird*. Collect stuff, avoid the obstacles, reach the end of the level.

ZOMBIEGAL KAWAII 2012
Sidescrolling shooter where you play chibi anime girls with guns fighting off big packs of ravenous zombies.

HONKAI IMPACT 3RD 2016
MiHoYo's first breakout hit, *Honkai Impact 3rd* is a character-action game that combines tons of genres.

GUNS GIRLZ 2014
Guns GirlZ is a spiritual sequel to *Zombiegal Kawaii*, with more story and characters to fill out the experience.

TEARS OF THEMIS 2020
MiHoYo's first 'otome' game, a visual novel or dating sim geared toward women. Not available in English yet.

personable enough, players will pay out the nose to unlock them. But as MiHoYo grew and took on more ambitious games, Cai said that mission broadened too. MiHoYo's flair for character design didn't have to appeal only to thirsty dudes. But despite a rapidly swelling audience, the studio was still struggling – like most Chinese developers – to make games that appealed to an audience outside of Asia.

LEVELLING UP

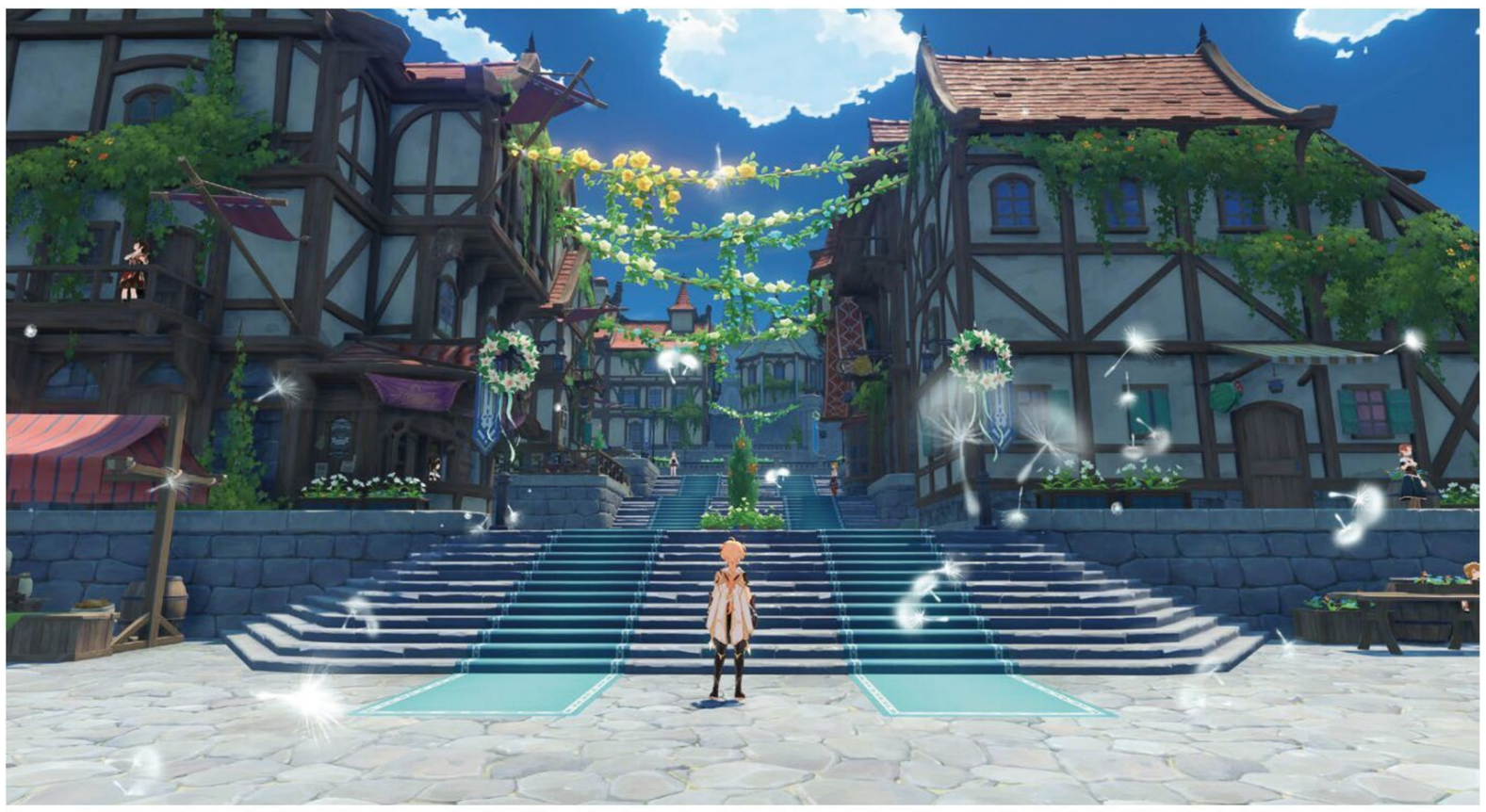
It's not news that gaming is a big deal in China, but it's important to realise just how big it really is. Analysts predict that soon there'll be more PC gamers in China than the total population of the United States, and PC gaming is just one slice of a larger gaming pie that is mostly made up of mobile gamers. But despite being a $40 billion industry, it's also one of the most regulated in the world.

Before any game can be sold in China, for example, the government requires it to undergo a rigorous censorship process that can take *months* to complete – and if your game is overly violent, sexy, or features anything from political commentary to occult magic, it runs a decent risk of being rejected. The mobile version of *PlayerUnknown's Battleground*, for example, was infamously remade into *Game For Peace*, a pro-China reskin where players politely wave goodbye after you shoot them in the face. That kind of censorship has created a desperate need to make games that don't just rely on the volatile Chinese market, but the obstacles are just as daunting.

It's not just that games need proper localisation or themes that appeal to players outside of China, either. China's game development scene is also undergoing rapid 'industrialisation' as Daniel Ahmad, a senior analyst at Niko Partners, tells me. For years, Chinese developers were stuck either making free-to-play MMOs and pay-to-win mobile games or working as outsourced mercenaries for big-budget studios outside of China. Even Ubisoft's Shanghai studio, founded in 1996, was mostly a helping hand for the main teams in Montreal and Toronto.

TOP: *Genshin*'s story is typical JRPG nonsense, and yes that's good.

BELOW: You can almost feel the seasonal allergies.



Because all the money was in mobile games or MMOs, China's games industry was a lot more homogenous than in other countries. The indie explosion that took the global games industry by storm around 2010 was just a gentle breeze to most Chinese developers. But that's changing as the industry matures and new technologies like Unity, the consumer-grade game engine *Genshin Impact* is built on, become more ubiquitous. "We're now in a position where Chinese game developers are able to reach [all kinds of] players," Ahmad explains. "Not just on mobile in China or globally, as it had been for the past few years, but also now on PC and console to the same extent as Western developers."

On PC, that means regularly seeing new Chinese indie games dominate Steam's top-seller charts, like *Dyson Sphere Program* and *Tale of Immortal*. But it also means independent Chinese developers, like MiHoYo, finally have the talent and tools to compete with the world's most popular studios. All MiHoYo needed was a killer game that could appeal to as many players on as many different platforms as possible.

CLONE WARS

If there's a secret sauce to all of MiHoYo's games, it's that each

liberally swipes ideas from a variety of beloved genres and games. *Honkai Impact 3rd*, which released on PC in 2019, is literally the kitchen sink of games: a hack-'n'-slash RPG that also somehow manages to incorporate everything from bullet hell shoot-'em-ups and MMOs to dating sims.

Genshin Impact is a more focused experience, but a big part of its initial appeal was its similarity to other games. Not everyone found its imitation flattering, though. When *Genshin Impact* was first announced, players were incensed by its obvious similarities to *Breath of the Wild*. In addition to a ton of online backlash, one player went so far as to smash his PlayStation 4 in public at the ChinaJoy gaming convention in protest. Cai says the team never saw the outrage coming.

"Honestly, we were quite surprised," he says. "Although we had various betas before the game's official global release in September 2020, only a small number of players were actually invited. So, given that most people hadn't personally experienced our game yet, it's only natural that there were some misconceptions and misjudgments."

Genshin Impact was never meant to be a malicious clone, riding on the coattails of more popular games. It was a love letter to them. "I remember that the *Breath of the Wild* developers gave a presentation at the 2017 Game Developers Conference where they shared their thoughts behind the design of the world, gameplay, and art style of the game," Cai remembers.

"For instance, they talked about turning a passive game into an active game. An example of this was removing the barriers created by walls so that players could go anywhere they saw on the map. Another example was how the ability to glide from high places using the paraglider greatly increased the freedom of movement for players. Such designs implemented alongside a multitude of actions and areas gave birth to limitless possibilities for gameplay and exploration. This approach had a big influence on us when we set out to create the open world of *Genshin Impact*."

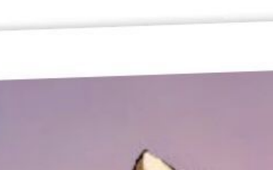
BREATH OF THE WAIFU

Those misconceptions were short-lived once *Genshin Impact* actually came out. While some might scoff at a game willing to shamelessly borrow *Breath of the Wild*'s most innovative features, many more players were just excited to be able to play a game that had that Nintendo level of quality without needing a Switch. And *Genshin Impact* is also so much more than a mere *Breath of the Wild* clone.

Cai says the team also took notes from *Grand Theft Auto V* – if you can believe it – in how to deliver story exposition without forcing the player into a long cutscenes traditional to

PICKING UP STEAM

Steam has become a haven for Chinese games. Here's three you should check out



CHINESE PARENTS
One of the first notable breakouts on Steam, *Chinese Parents* is a clever and charming life sim about the modern pressures of growing up in China.

GUJIAN 3
A sprawling and epic action RPG that has a lot in common with *The Witcher 3*, *Gujian 3* is a 'xianxia' RPG about divine beings, martial arts, and cosmic wars between spirits.

AMAZING CULTIVATION SIMULATOR
It's like *Rimworld* except instead of building a colony on an alien planet you start a martial arts school and ascend your character to godhood.

"IT'S ONLY NATURAL THAT THERE WERE SOME MISCONCEPTIONS AND MISJUDGMENTS"

JRPGs. MiHoYo also studied *The Elder Scrolls* for how to design good open-world quests, while it's melee combat clearly took lessons from *Nier: Automata*.

But at the heart of *Genshin Impact*'s genius is its eclectic and ever-growing cast of characters. Drawing upon all the lessons learned from its previous games, *Genshin*'s anime roster is immediately lovable and surprisingly family friendly when you consider the company's original mission to cater to horny boys. Cai explains that the process of designing these new characters is extremely intensive, each one taking about nine months, "The most challenging part of making a character comes down to one question in the end: how do we create a character that players will like? No one can guarantee that the character you create will be popular, but what we can do is improve through a constant process of creation, experimentation, feedback, absorption and then creation again."

GROWING STRONGER

It's a loop that MiHoYo has been practising since its very first game, and it's hard to overstate how good it's become at making lovable anime goofs. But *Genshin Impact*'s appeal isn't *just* its characters. It's due to how so many of its strengths fit together to create a game that feels like it should cost $60 but is instead completely free. That I can play it on my PC and then jump over to playing on my phone seamlessly makes *Genshin Impact* astounding. Even its microtransactions, though sometimes annoying, are entirely optional.

"It's more based around paying for things that you want as opposed to paying for things that you need," Daniel Ahmad explains. "What that means is that you can essentially play *Genshin Impact* for free for a really long time. There's no real pressure, at least in the first 30 hours of the game, to pay for anything."

In hindsight, it's no wonder that *Genshin Impact* has become as popular as it is. But the ace up MiHoYo's sleeve is that it's just getting started.

ONLY THE BEGINNING

Since *Genshin Impact* launched, it has already had a string of major updates adding new characters, limited-time events, quests, bosses and even new regions. And all of that has come at a rapid pace that puts many other live-service games to shame. Previous updates, for example, have added a

"IT WILL TAKE YEARS TO TELL THE FULL STORY OF GENSHIN IMPACT"

massive festival alongside a new dating sim-style mode where players can spend one-on-one time with different characters to unlock unique rewards. But *Genshin Impact*'s world is also a lot bigger than the two regions of Mondstadt and Liyue that debuted with the game.

"Rather than focusing on our short-term performance in the game market since release, I pay more attention to whether or not players will be able to continue enjoying our game in the future," Cai says when we spoke to him earlier this year. "Actually, this is related to our long-term operation strategy: When we started work on *Genshin Impact*, we had already decided that there would be seven regions, of which we have only released two so far. It will take years to tell the full story of *Genshin Impact*."

And that is just a sliver of Cai's vision for the future. Now that China is primed to deliver more global hits, *Genshin Impact* and MiHoYo are going to have to rapidly evolve to keep pace, and Cai has an ambitious idea of what that might entail.

ABOVE: *Genshin*'s combat is fast and vicious, so you'll need a good party.

"We believe that the virtual world is the future of humanity and technological development," he says. "There are so many possibilities and fun things to be found in the virtual world which simply can't be achieved in the real world – the virtual world makes the impossible possible. We hope that as technology continues to develop, we can create a virtual world for our players and users where infinite unknowns and possibilities await, a world that can bring them more joy. I suppose this is what can be considered as our mission." ■

JUST GENSHIN STARTED

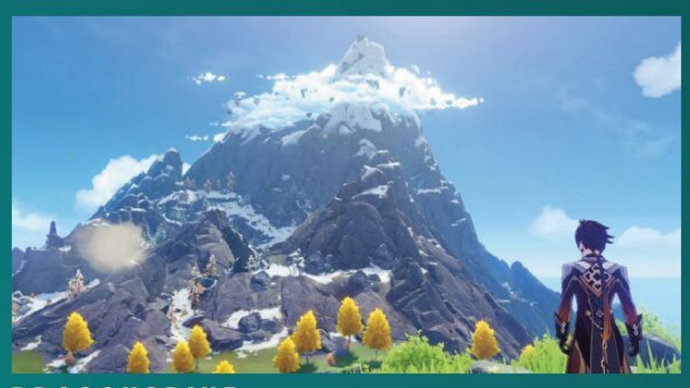
Genshin Impact *is big, but MiHoYo plans to add around five new regions. Here are the first three*

MONDSTADT

Pastoral fields surrounding a medieval kingdom terrorised by an evil dragon, Mondstadt is maybe a little *too* similar to Hyrule, but it sure is pretty.

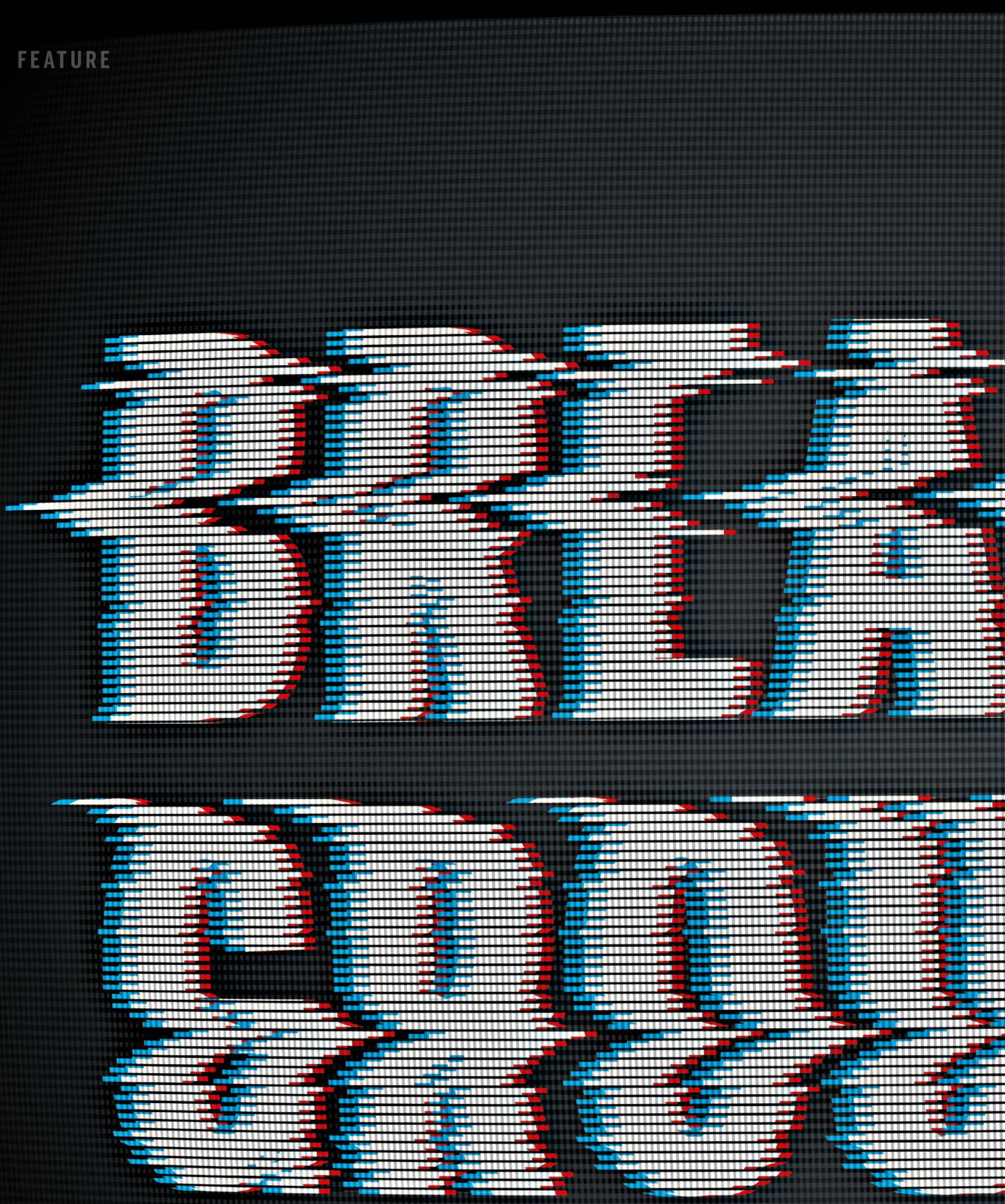
LIYUE

Genshin's visual potential comes to life in this country inspired by ancient China, complete with terraced villages, mountains, and a resplendent coastal city.



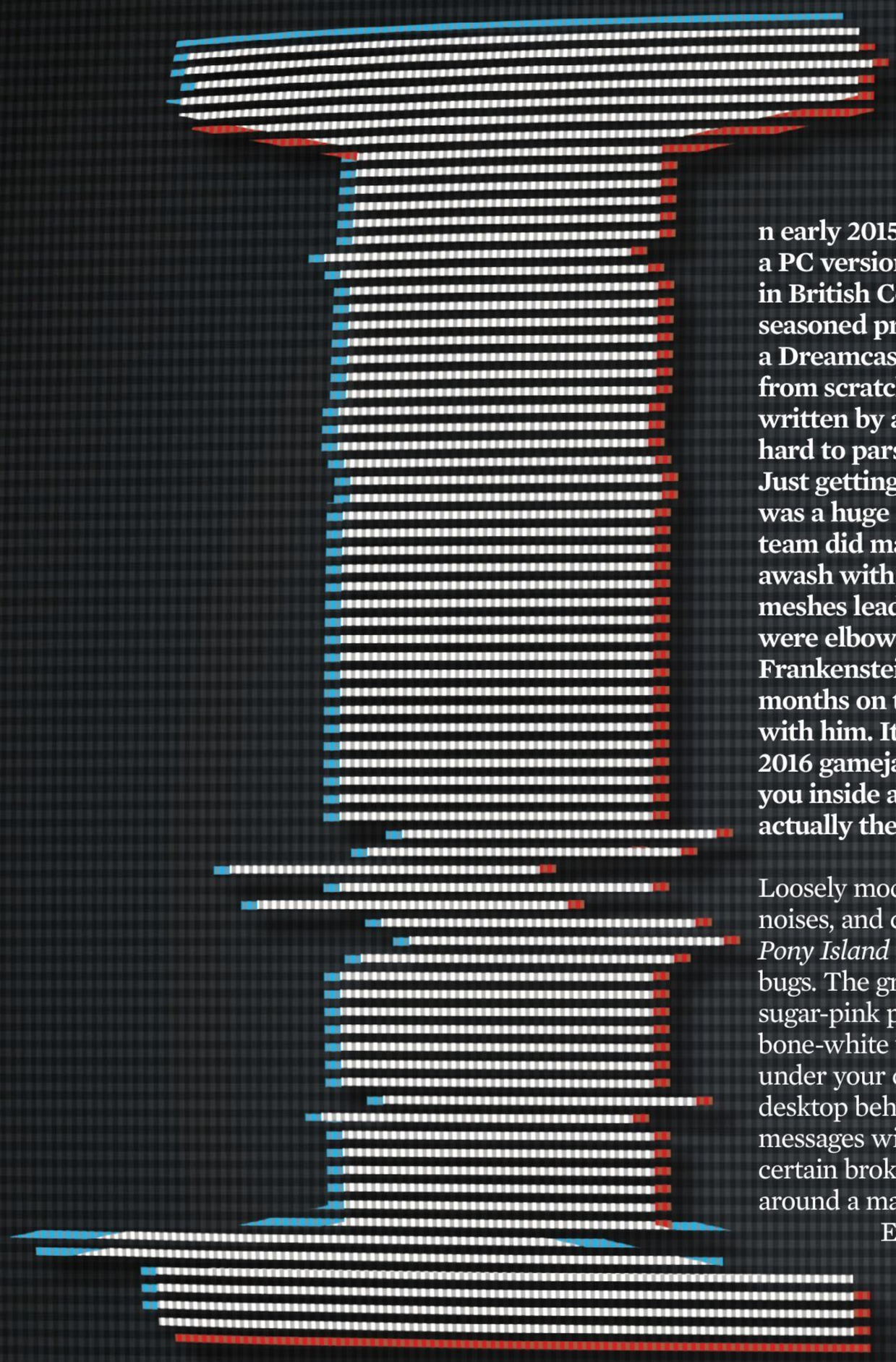
DRAGONSPINE

Added to the game in the 1.2 update, Dragonspine is a frigid mountain wasteland where players have to fight to keep warm or else freeze to death.



MEET THE DEVELOPERS MAKING BUGS AND GLITCHES ON PURPOSE

By Edwin Evans-Thirlwell



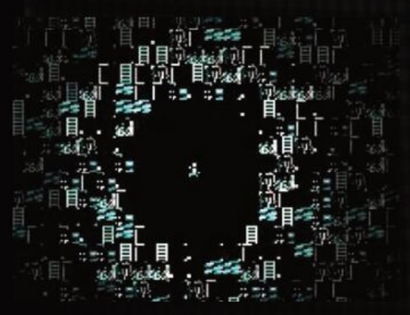
In early 2015, Daniel Mullins was working on a PC version of *Grandia 2* at Skybox Labs in British Columbia. Mullins was a pretty seasoned programmer at the time, but porting a Dreamcast title from 2002 felt like starting from scratch. "I was looking at this ancient code written by a Japanese team," he says. "It was so hard to parse – it was like nothing I'd ever done. Just getting basic things to appear on the screen was a huge accomplishment." When the porting team did manage to output graphics they were awash with bugs, including improperly rigged meshes leading to "knees moving as if they were elbows, creating grotesque walking Frankensteins". Mullins only spent a few months on the project, but the ordeal stayed with him. It would prove foundational to his 2016 gamejam creation *Pony Island*, which traps you inside a glitchy arcade machine that is actually the work of the devil.

Loosely modelled on the pixel fonts, boot-up noises, and curving low-res monitors of older PCs, *Pony Island* is a wicked celebration of videogame bugs. The graphics fluctuate wildly between a sugar-pink pastoral backdrop and a glaring bone-white wasteland. Menu options corrupt under your cursor. Swirling artefacts unlock a desktop behind the main menu, where you'll trade messages with other imprisoned souls. To restore certain broken features, you must guide a key around a maze of command line text dotted with English words – a representation of how it felt to wade through *Grandia 2*'s innards, deciphering the odd line here and there.

CRASH COURSE

Pony Island is part of a curious tradition of games that build stories, levels, and features around simulated technical problems. These games come in all shapes and sizes. As you'd expect, many are indie experiments – take *Metroid* homage *Axiom Verge*, where you can 'glitch through' corrupted

CRASH COURSE *Some of the best 'glitch games' can be found on itch.io*



FJORDS

By Kyle Reimergartin

Purely and simply a game about delivering pizza.

DEIOS

By BARCHboi

A 'glitchventure' inspired by lost bulletin boards.

GLITCH DUNGEON

By jakeonaut

Pixel dungeon crawler in which magic breaks the game.

PROBLEM ATTIC

By Liz Ryerson

"A game about prisons, both real and imaginary."

LABYRINTHOS

By dataerase

Highly WIP glitch RPG comparable to *Phantasy Star*.

terrain, or *The Cursed Pickle of Shireton*, a raucous faux-MMO that runs in text-based debug mode thanks to a 'malfunctioning' graphics engine. But there are also big-budget titles such as *Metal Gear Solid: Ground Zeroes*, which may be 'infected' by the fictitious FOXDIE virus, and *Eternal Darkness: Sanity's Requiem*, where stressing your character out might see the game pretending to delete your save data. These projects give you a glimpse of the artistic potential in the disruption of form and function; they don't just 'turn bugs into features' but suggest that imperfections can be a source of drama.

But what exactly counts as a bug or glitch? These concepts are arguably meaningless in themselves: they are defined with reference to specific technologies and expectations. There are plenty of graphical errors, such as texture-wobbling in 3D PS1 games, that are embraced as hallmarks of a particular platform rather than slammed as failings. Similarly, lighting issues that are overlooked in lo-fi productions might be perceived as terrible shortcomings in blockbuster shooters with slick, photorealistic aesthetics. Simulating a glitch is thus a kind of silent, inverted commentary on a game's production and design context. It reveals the unvoiced rules and assumptions that surround these games by breaking them.

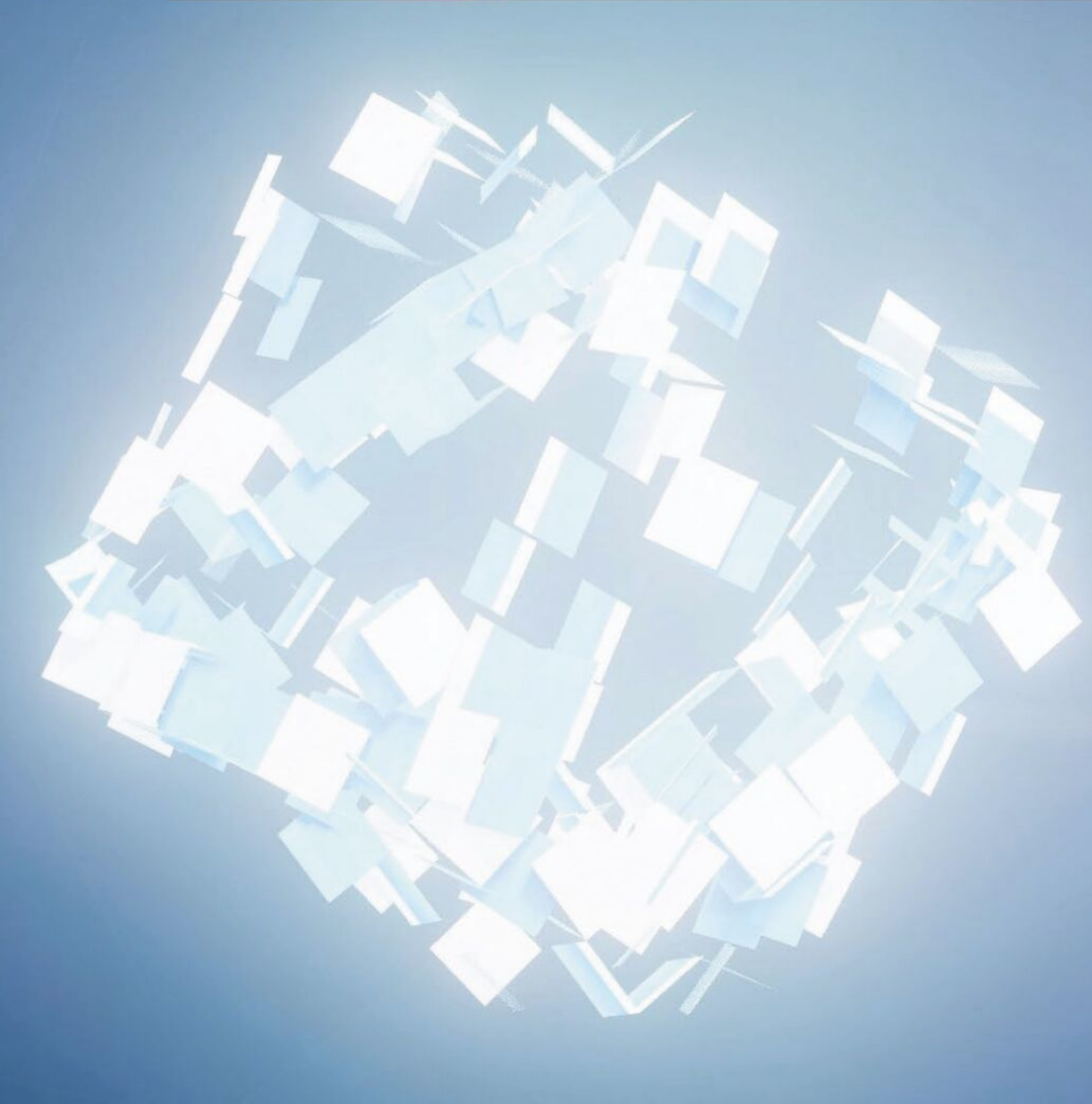
SIMULATING A GLITCH IS THUS A KIND OF SILENT, INVERTED COMMENTARY ON A GAME'S PRODUCTION AND DESIGN CONTEXT

There's obviously the risk that a pretend error might be interpreted as the real deal. One common way of avoiding this is to frame them as problems with a technology *inside* the game's world. The most famous example is *Assassin's Creed*, in which modern-day protagonists relive the lives of their ancestors care of the Animus, a piece of holographic genetic memory tech.

The Animus – or at least, the present-day storyline it connects to – is often reviled by fans as a wonky distraction; Ubisoft's own marketing department was dubious about it back in 2006. But it has proven to be a powerful storytelling framework, allowing Ubisoft to string a dozen games in different eras into one, on-going sci-fantasy intrigue. It allows the developer to explain away contrivances such as the HUD itself as features of the Animus software. And of course, it allows the game to dramatise errors – notably, catastrophic 'desynchronisation' resets when you fail to act as your ancestor would have acted.

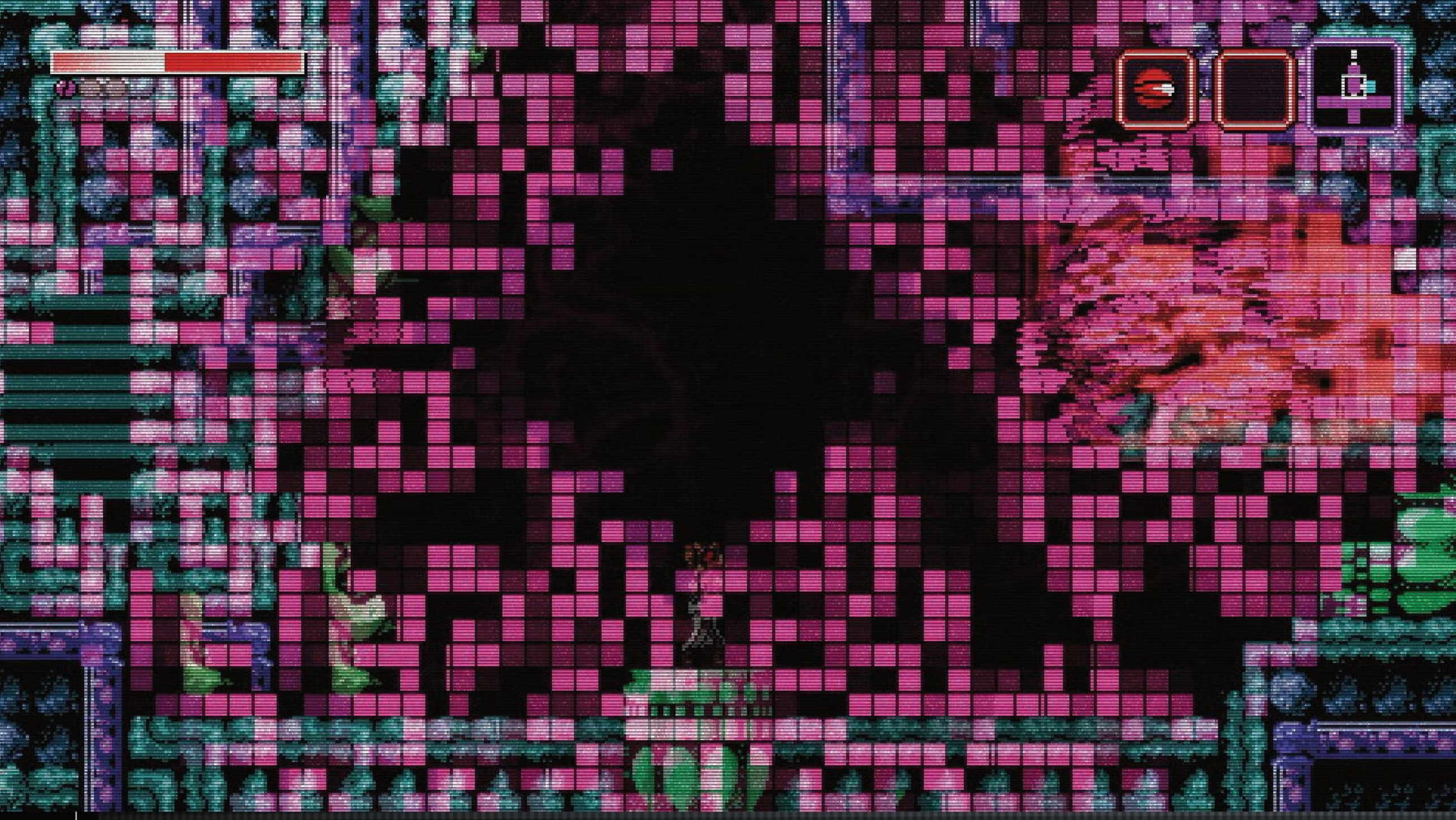
ALTAÏR EGO

If *Assassin's Creed* is a potent 'glitch game', however, it is also a game about fixing glitches and reconciling the tension between the Animus UI and the setting. "We didn't want the Animus technology to overwhelm the player or to break the experience by having too much 'data stuff' happening," observes Nicolas Rivart, visual design director on *Assassin's Creed Valhalla*, released in 2020. Rather, the new game's Animus and Norse aesthetics are carefully entwined. "Given that the machine is decoding the memories of a Viking chieftain, we felt that it would be interesting to show the visual elements of the era transferring to the Animus." The Animus of *Assassin's Creed Origins*, Rivart goes on, had a "goldish, sand-stormy feel" reflecting its Ancient Egyptian timeframe. For *Valhalla*, the developer has based



LEFT: You'll face digitised arch-demons in *Pony Island*.

MAIN: *Valhalla*'s anomalies jolt you out of character.



the colour scheme on the Northern Lights and incorporated Norse runes into the interface.

This blended aesthetic is governed by a withered grid pattern, redolent of both Norse runes and the Animus UI, which is present everywhere in the game. Besides helping to structure menu screens, it's a way of subtly imposing a role on the player – to "lay a pattern before them, the pattern of the ancestor," as Rivart explains. Desynchronise, and the grid tears itself to pieces. In a way, your objective in *Assassin's Creed* is simply to maintain that grid – to behave as the simulation requires in order to continue the art direction's efforts at blending the ancient with the modern. In *Valhalla*, you're literally asked to patch up Animus anomalies, marked by incongruous 3D artefacts that generate wireframe platforming courses.

Horror game developers have proven more willing to embrace the jarring effects of glitches. Like *Assassin's Creed*, Bloober Team's cybernetic chiller *Observer* is caught between eras. In the words of creative director Mateusz Lenart, it is "a clash between retro-style design and more typically futuristic technologies, inspired by Blade Runner and Alien," and "filtered through the lens of a Polish communist era aesthetic". The game casts you as a cyborg detective in near-future Krakow, equipped with the ability to hack the brains of the deceased.

POLISHED VISUALS

Observer is also about synchronisation – you must take pills to stop your body rejecting your implants, which leads to dizzying effects such as smeared movement, colour changes, and compression artefacts. There's only so much 'synchronising' you can do, however, because the glitches are metaphors for social divisions.

There's no seamless Animus-style blending of the high-tech and antiquated in *Observer*'s capitalist dystopia; instead, flesh and machinery are forever pulling apart, and pristine holograms float eerily against crumbling, insanitary brickwork. *Observer*'s rickety cyborg HUD alters the appearance and colour of pixels according to various open-ended parameters, as game designer Pawel Niezabitowski explains. There's "the 'overdose' effect, with its blurry shaky screen – large delay, fluid dispersal, no colour change". And there's "the intensely 'electronic' glitch effect – short, sudden and drastic colour changes". Simulating bugs like these can be pretty hardware-intensive. "Optimisation proved to be our biggest challenge," Niezabitowski continues. Bloober eventually created a complex managing tool to balance more specific post-processing effects against those resulting from your character's shifting mental state. There were some dramatic setbacks. "At one point during production, one of our designers cranked up the 'glitchy' visual effects to such a level that even his computer couldn't take it any more and shut down, killing the controller in the process," recalls Lenart, adding that "after some intense deliberation, we decided to leave that particular feature out".

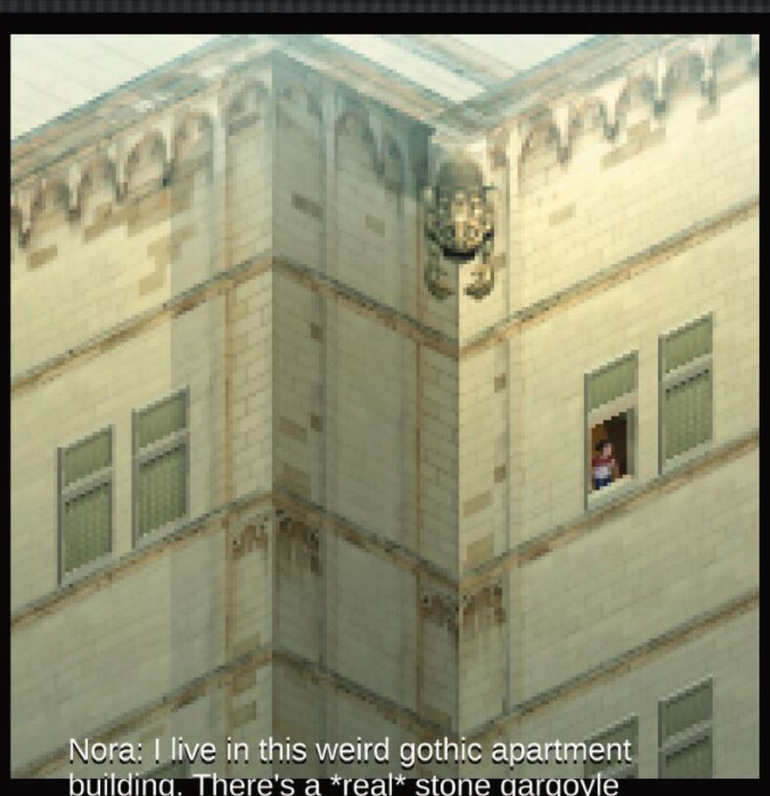
Players, of course, may be turned off by simulated glitches long before computers give way. "There's a wide spectrum of how various people react to these sorts of visuals, with some suffering from motion sickness," Lenart continues. "The effect of our HUD destabilising wasn't meant to be pleasant, as we wanted the player to feel motivated to take another dose of the synchronising medicine. Then again, we certainly didn't want the player to become physically ill from the experience. Hence, a lot of the effects we'd tested ultimately didn't make it into the game." Bloober Team also stopped short of portraying the glitches as fundamental problems with the game. "Breaking the fourth wall is always tempting, especially in this genre," Lenart adds. "We certainly played around with some interesting ideas. Ultimately, however, we focused on making the player immersed in what's happening to the protagonist."

Immersion and the fourth wall are key terms in discussion of videogame glitches. They suggest a firm boundary around the illusion – an illusion that

ABOVE: *Axiom Verge* turns glitching into a power-up.

BOTTOM: *Anodyne 2* houses many styles of videogame.

FAR RIGHT: The Animus checks exploration in older *Assassin's Creeds*.



must be purged of reminders that you are interacting with a piece of software. This disregards what can be achieved by taking the software's status *as* software as your artistic and narrative premise. Consider the 2019 indie hit *Anodyne 2*, another work of period-splicing in which you explore an overworld rendered in PS1-grade polygonal 3D, jumping into NPC mindworlds that recall 2D *Zelda* maps.

The game is full of simulated blemishes or shortcomings – among other things, you'll hear characters sneer about the quality of the background art – but these aren't treated purely as disruptions. Rather, they exist "to draw attention to there not being a hard boundary between the game's fiction and, I guess reality," notes Melos Han-Tani, one half of developer Analgesic Productions. "It's not just like, 'Whoa, meta stuff!' It's tied into the fiction of the game in sort of a blurry way." The game's open world includes 'Unzones' filled with incomplete features that aren't just 'director's cut' additions, but a playful elaboration of the core mythology. There is an isometric horror segment triggered by talking to a placeholder NPC, which continues the protagonist's personal dilemmas into a different genre.

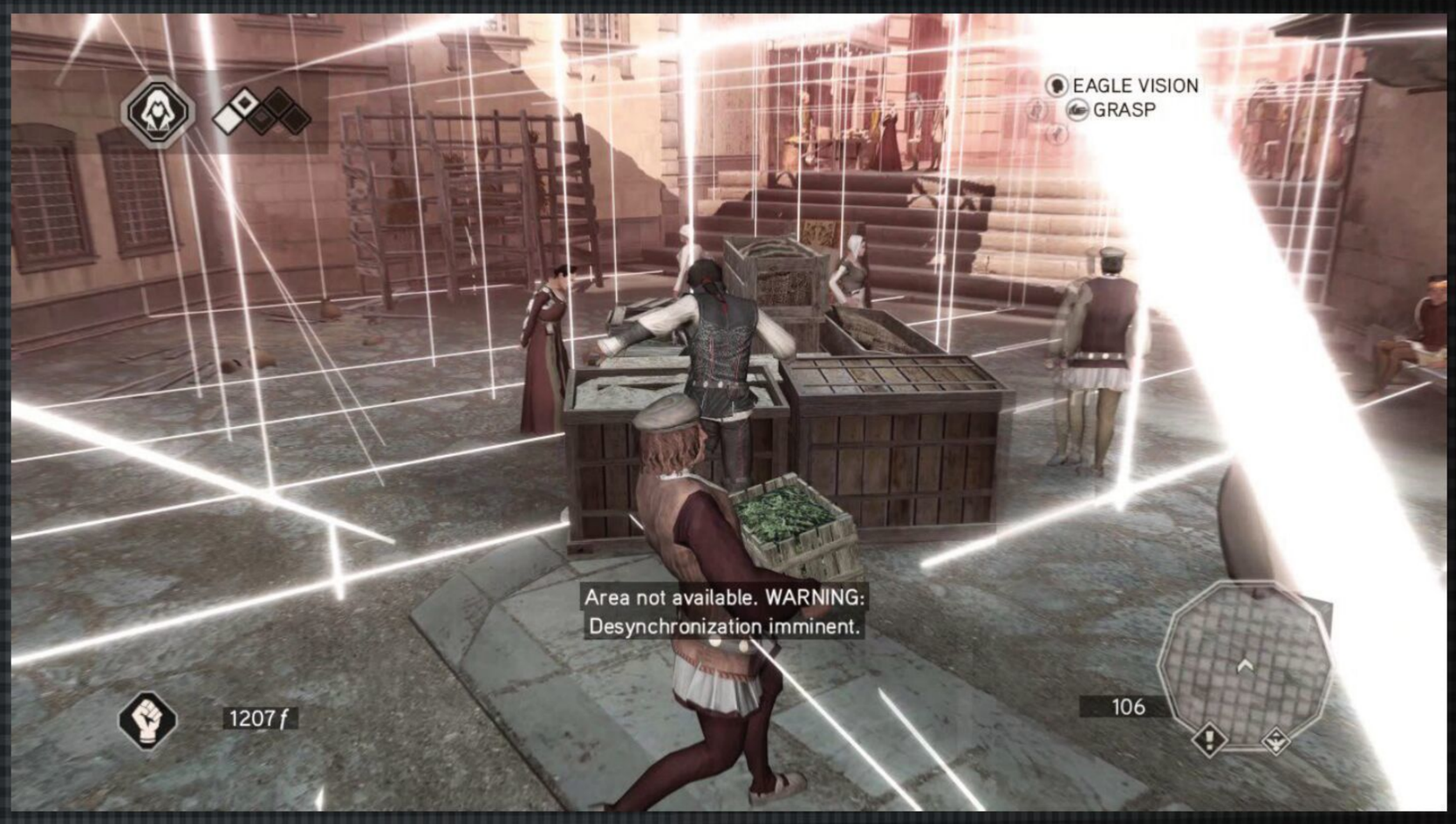
BEHIND THE SCENES

Dismantling that 'hard boundary' is important because so much triple-A videogame production is essentially about hiding the developer's labour from view – strenuously polishing away anything that feels artificial. Analgesic co-founder Marina Kittaka argues that this culture has trained players to be pathological nitpickers, branding developers lazy over the slightest discrepancy, "There has been for a long time a very unhealthy feedback loop between big game companies and their audiences, where for capitalist reasons, companies are selling a certain fantasy of perfection and ultimate immersion."

Bugs and glitches are maker's marks – they remind you that every game is the result of somebody's sweat and toil. Games that simulate errors are invitations to think about that toil more analytically – they are a kind of irreverent making-of feature, more compelling for being woven into the game's fabric. This is an important theme of *Pony Island*, which invites you to develop a certain sympathy for the devil even as you battle for freedom. If the game within this game is an instrument of torment, the bugs also paint a portrait of an overwhelmed lone developer, struggling to fit in some QA before shipping.

None of which is to suggest that we should tolerate actual errors in our games, but it's worth thinking about both the work that goes into steaming out bugs, and what we lose by insisting on that rigid barrier between an immersive game and a buggy one. As *Pony Island* and its peers reveal, games are seldom more exciting and mysterious than when they start to break down. ■

BUGS AND GLITCHES ARE MAKER'S MARKS – THEY REMIND YOU THAT EVERY GAME IS THE RESULT OF SOMEBODY'S SWEAT AND TOIL



ERROR MESSAGES *How to make your own glitch art pieces*

1 TRY DATA-BENDING

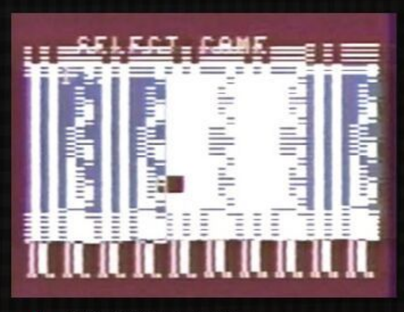
Opening an image in an audio editor like Audacity allows you to glitch it by adding effects such as echo. It doesn't always work but may produce a range of fascinating distortions (you can always cheat by visiting photomosh.com). This is a glitched shot from *Yakuza 0*.

2 BE CREATIVE WITH IN-GAME TOOLS

Videogame designer Gareth Damian Martin created a photographic essay series for *Ghost Recon: Wildlands* by flying a military drone to the edge of its operational range, seeing in the resulting visual noise "a symbol of the violence implicit in its gaze".

3 TRY ECCENTRIC ART PROGRAMS

Andi McClure and Michael Brough's Become a Great Artist in Just 10 Seconds "is a chaotic paint program, where each key on the keyboard does a different unhelpful thing". Give it a try for yourself and see what you can create at: data.runhello.com/j/artist/3



4 ABUSE THE HARDWARE

One of the best-known glitch artworks, 1978 video piece Digital TV Dinner, was made by punching an unfortunate Bally Astrocade until the cartridge popped out, resulting in patterns born of invalid pointers and broken references in stack frames.

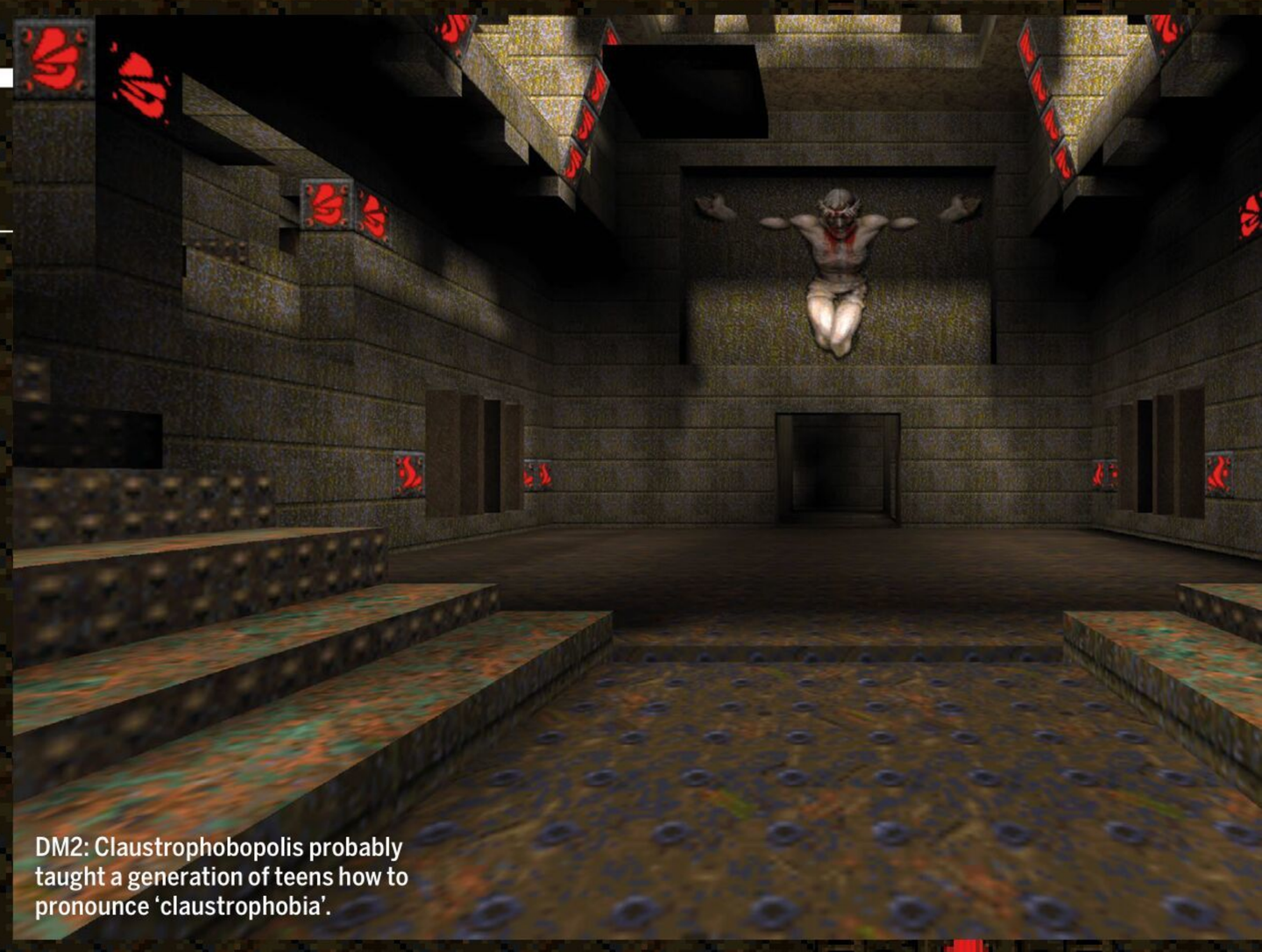
5 REBUILD THE HARDWARE

This piece, Fabricating Elk Meadows, from glitch artist Big Pauper, was created by doing very precise, unspeakable things to a PlayStation 2's CPU, then capturing shots from *Cabela's Dangerous Hunts*. It's not an approach for newcomers.

MAKING HISTORY

The story of 1997's **QUAKE AFT** – the first ever all-female professional gaming tournament.

By Alexis Ong



DM2: Claustrophobopolis probably taught a generation of teens how to pronounce 'claustrophobia'.

On her first trip away from home, in a Burbank, California, mall filled with CRT monitors and *Quake* fans, Lorie Kmiec Harper's mouse broke. It was 1997, and Harper, a 23-year-old assistant warehouse manager from Ontario, was playing as a finalist in the first-ever All Female *Quake* Tournament under the handle Temperance.

"I got kicked out first, you know that, right?" Harper says. "I was number one in Canada, or I was that year," she reminisces. "But I was eighth in the world."

In another scenario, Harper's busted mouse might not have been a big deal. "I don't know how attached you are to your mouse, but for gaming purposes, it was really bad timing," she says. She'd spent the previous month training for the finals, playing with people all over the world, sometimes in the middle of the night. It was the first time she'd gotten a passport, and she was excited just to have made it to LA with her plus-one – her then-boyfriend, a computer engineer who had built her first gaming rig.

The other finalists came from all over North America: Bridget 't0nka' Fitzgerald blew off her freshman orientation at Juilliard to play at the finals ("My teacher was like, you are leaving to do what?!" she recalls). Kornelia 'Kornelia' Takacs had made a name for herself at the GDC Ten Tournament earlier that year. Stevie 'Killcreek' Case was a competitive player infamous for beating *Quake* designer John Romero in a highly publicised deathmatch. Rounding out the final eight were Aileen 'Shadyr' Carlstrom, Mars, LaEl, and Queen Beeatch.

Case was favoured to win, according to a New York Times article from 1997, but Takacs triumphed. "No two matches are ever the same. [*Quake*] reminds me of chess in a way," highlights Takacs. "One of my role models is Judit Polgár, one of the best chess players in the world."

While an all-women's tournament doesn't seem like a big deal today, it certainly was then. And AFT – a pioneering event in women's esports – only happened because of a wager.

WANNA BET?

The tournament was created by Anna 'NabeO', who still prefers anonymity to keep the focus on the competitive players. In the lead-up to the tournament, she did her best to stay in the background because she'd started getting hate mail. Anna was fed up with the perception that there weren't many women who played videogames, much less *Quake*. "It became so annoying that I thought I should get a bunch of girls to form a clan and play together at a competitive level," she says. "I guess that's where the idea of a female tournament started."

After reaching out to id Software for their official blessing, she ran into a snag: nothing was going to happen without cofounder John Carmack's approval, and Carmack didn't think there were enough women for a tournament. So they made a bet. "I think we bet something silly like $100 or something insignificant – it was the bragging rights that were important," she says.

Armed with $1,000 of her own money, a home fax machine and id's public backing, Anna got to work and ended up with more than 800 registrants. It was the first tournament of its kind for the wildly popular shooter, which was, like esports today, dominated by men. After securing sponsorships from Total Entertainment Network and Burbank's Slam Site, the game was on.

For Harper, the AFT was definitely not the same as what she was used to playing at home. She played *Quake* online, on a 14.4 or 28.8kbps dial-up connection. Once in California, she realised that

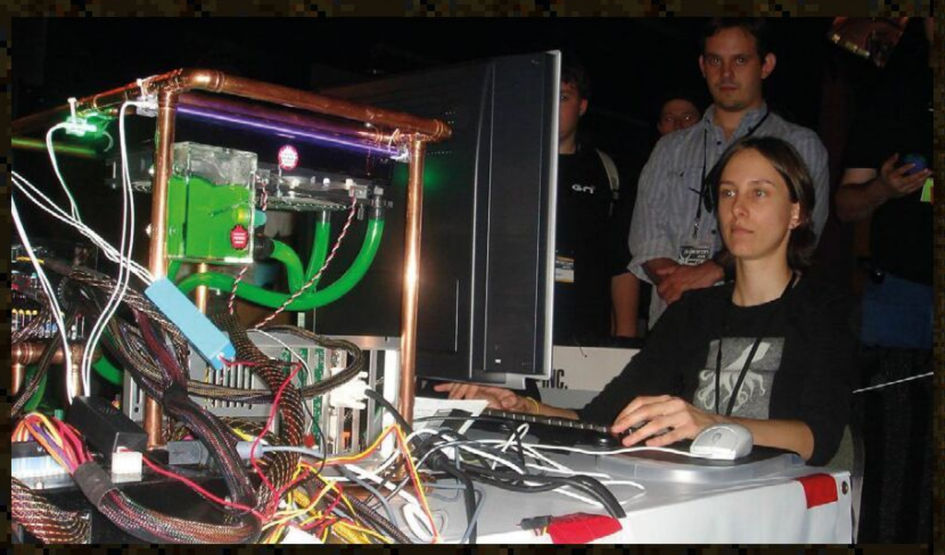
PRINT IS FOREVER

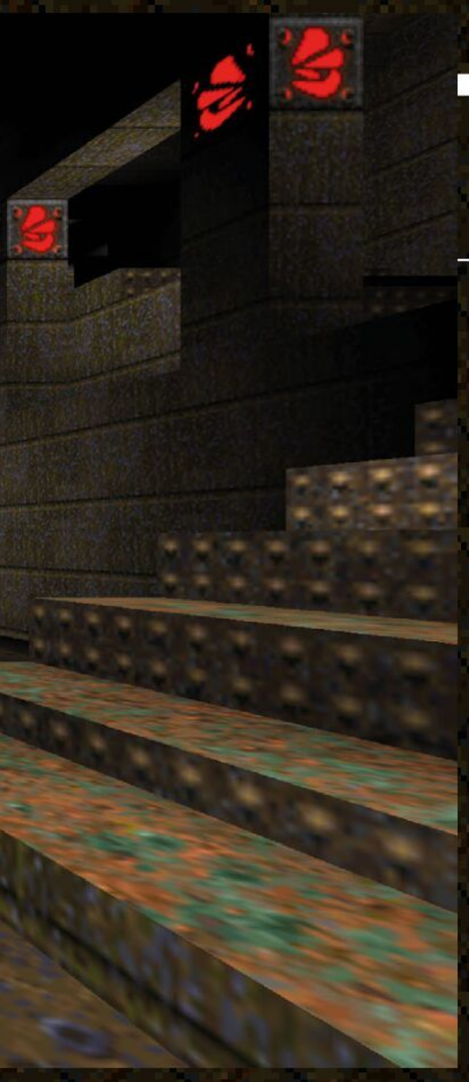
It's not the first time we've written about AFT

PC Gamer covered the tournament at the time, including this admittedly grainy photo of the eight competitors. Thanks to friend of the magazine Frank Cifaldi at the Video Game History Foundation for digging this blast from the past out of the archives for us.

LEFT TO RIGHT: Queen Beeatch, Temperance, Kornelia (the winner), Killcreek, LaEl, Mars, Shadyr, and t0nka.

Quake was one of the first games ever considered an esport.





playing on a LAN meant there wasn't any lag to deal with. "[When] I'm playing on a server, I have all this lag, and I'm able to do rocket jumps [and get away in time]," she recalls. Fitzgerald agrees – the lack of lag threw off her timing and made it impossible for her to play her best, even after a childhood of attending LAN parties in New York with her brother.

Even then, being eliminated wasn't an absolute loss for Harper because the tournament organised trips for them to such places as Disneyland and Universal Studios as a consolation prize. "Everybody was having a good time. I know this sounds terrible, but [girls] didn't take it quite as seriously," she says. "We thought the whole concept of the game was fun."

EYES ON THE PRIZE

Not everyone felt the same – Kornelia Takacs was, by nature, competitive and serious. "The All-Female Tournament was tough, because I did not have a lot of tournament experience at that point and while at QuakeCon I would be happy to place in the top 16, at a female tournament placing second was not an option for me," she recalls. Takacs was one of the world's first professional esports players and also participated in QuakeCon, The Frag, the GDC Ten Tournament, and the Cyberathlete Professional League in the late 1990s and early 2000s. Fitzgerald, who was serious and competitive about her music, fell somewhere in the middle and mostly saw games as fun.

Takacs, Harper, Fitzgerald, and Anna all have cherished, positive memories of the AFT, but for some, the prizes were a weird point of contention – amid the software, autographed *Quake* swag, and computer parts were also custom wedding garters and cosmetics. Kornelia's was black. "Mine was like a pale, robin's egg blue and it had the *Quake* symbol on it," Harper says. Fitzgerald thinks she totally tuned it out. "Honestly, I didn't even register it when it happened," she says.

Looking back, Anna, who organised the tournament, doesn't see anything weird about the prize choices. "People like to cherry pick what they want to remember, but there were tons of little gifts that I put together to try to make it fun and intimate... I don't personally think, then or now, that these things are shocking gifts to be given from one girl to another. When I have a girls get-together, I still do this!"

A slightly threatening photo of winner Kornelia.

THE 1990S WERE BOTH FASCINATING AND DIFFICULT FOR WOMEN IN GAMES, ESPECIALLY IN COMPETITIVE GAMING

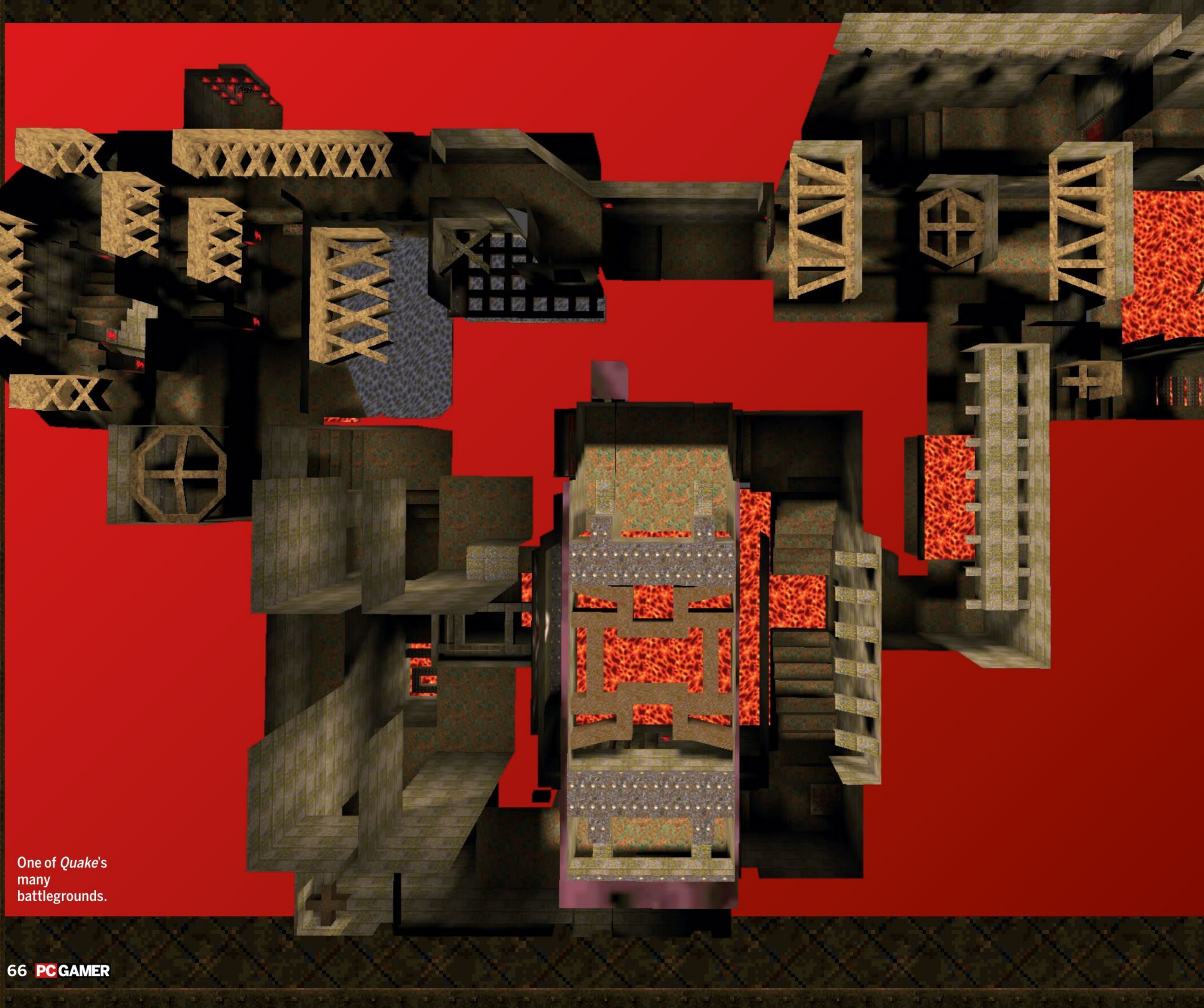
It's hard to imagine professional female players being presented with something like this now, but the 1990s were both fascinating and difficult for women in games, especially in competitive gaming. Anna believes that there are different social standards for women that don't always translate

well into the demands on female esports athletes. "I'm sure there will be a few, but the path is much harder for women," she says.

TOXICITY THEN...

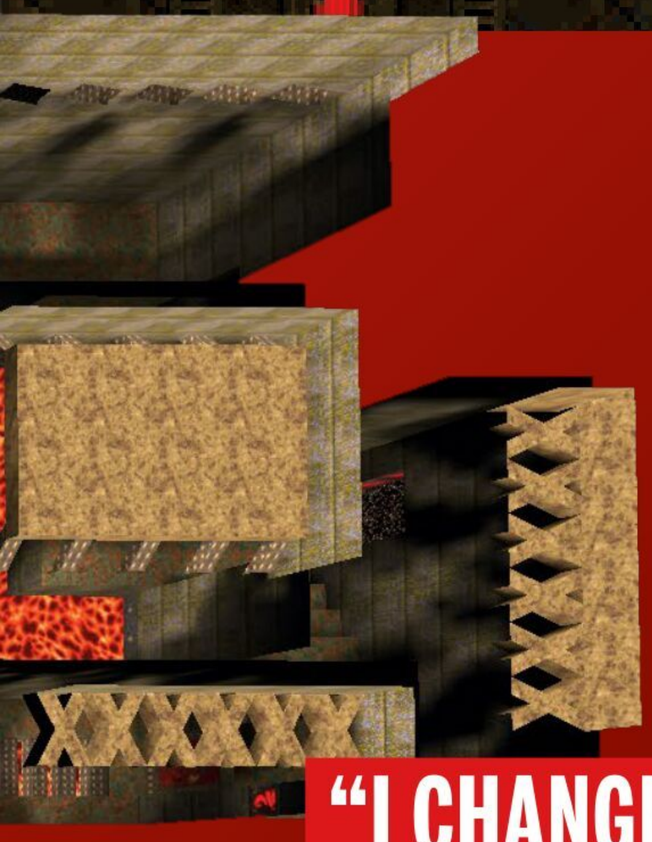
In Fitzgerald's experience, things were more straightforward back then, especially because *Quake* didn't have a chat feature, much less voice chat, and she often had to find players on IRC. "You had to get an IP address, someone had to host it, you couldn't just fire up the old console and hit roulette or whatever... I did not like playing with random people, because you know, men." There also weren't as many people online, which somewhat encouraged self-moderation if you still wanted people to play with you.

"If you became a dick, they were like 'buh-bye' and they would kick you out," says Fitzgerald. She recalls that online shit-talking only became gendered when they found out she was a woman. She tells me about her original online handle, a variation of 'Tank Girl' (which was coincidentally also my first IRC handle) – the comics and the 1995 film were a huge influence on many girls in



One of *Quake*'s many battlegrounds.

Listen, Kornelia was the one with all the photos.



the 1990s. "I changed my name to t0nka, because I was like, I don't need [this harassment]," she says.

"There was a lot of hate," Harper recalls – men simply didn't want to get beaten by a woman, and sometimes didn't even believe she was a woman. "Like right now you can say fine, I'll livestream my game right now with you. We didn't have that technology back then," she says. Case has spoken openly about the harassment she faced. "People would dig up old pictures of me in high school and new pictures and write these elaborate multi-page teardowns of every aspect of my being," she says in a 2016 interview with the Techies Project. "At one point an ex-boyfriend posted a lengthy, insulting, derogatory post on one of the biggest gaming blogs at that time."

On the other hand, Takacs says she didn't really experience negative treatment for being a woman. "Neither for being a left-handed gamer, a Hungarian-born gamer, or a female gamer," she says. "Back then I was not out of the closet, but I assume that would have been accepted as well by most gamers."

"I CHANGED MY NAME TO TONKA, BECAUSE I WAS LIKE, I DON'T NEED [THIS HARASSMENT]"

...TOXICITY NOW

It's clear that the AFT was a milestone for women and helped to legitimise female pros in an industry overwhelmingly dominated by men. But in talking to the women who were there, sexism in the early days of pro gaming feels like something that either had to be ignored or endured. In Fitzgerald's eyes, the main issue was that the 1990s were "peak misogyny". What she saw and experienced online was simply an extension of what she saw and experienced in real life. "I didn't have TV until I was like 13," she says. "I'm the same age as Chelsea Clinton... and the way they would talk about her on television... I was like, 'Mom, what is television?!'"

When I tell Kornelia about the kind of harrassment that women in games face today she's visibly shocked.

So much has changed since then, and yet so very little. With social media and far more ways to harangue and expose people, harassment has arguably become more dangerous. In 2016, professional *League of Legends* player Remilia publicly quit due to anxiety and mental health issues stemming from sexist and transmisogynist harassment, and in 2019, died in her sleep. One of the world's best *Overwatch* players, Geguri, considered using software to deepen the sound of her voice, and the subject of women's-only tournaments is hotly debated as either unnecessary or a painfully slow stepping stone to eventual progress – 90% of esports scholarships still go to men.

"People are brands now," Fitzgerald observes of the modern gaming landscape – there are so many different factors for why people choose to get into esports now beyond simply having fun. Women's game tournaments today are a far cry from the days of one woman, Anna, hitting the bricks to bring a totally unprecedented tournament to life. And yet the AFT, for its unique place in history, still remains a bright spot not just in women's gaming history, but gaming history overall. ■

STILL AT IT *What are the finalists playing in 2021?*

KORNELIA

Call of Duty: Modern Warfare 3

"I'm not very good anymore, but we just play for fun."

TEMPERANCE

Raft and *Valheim* with her kids, *World of Warcraft* with her husband

"You'd think with my history and everything I'd be all-out battling... but I'm more like a farmer."

TONKA

The Legend of Zelda: Breath of the Wild

"I don't wanna kill anything anymore... [though] if someone gave me Halo, *I would probably play it for 12 hours straight."*

Quantum Error

By Edwin Evans-Thirlwell

GRIND

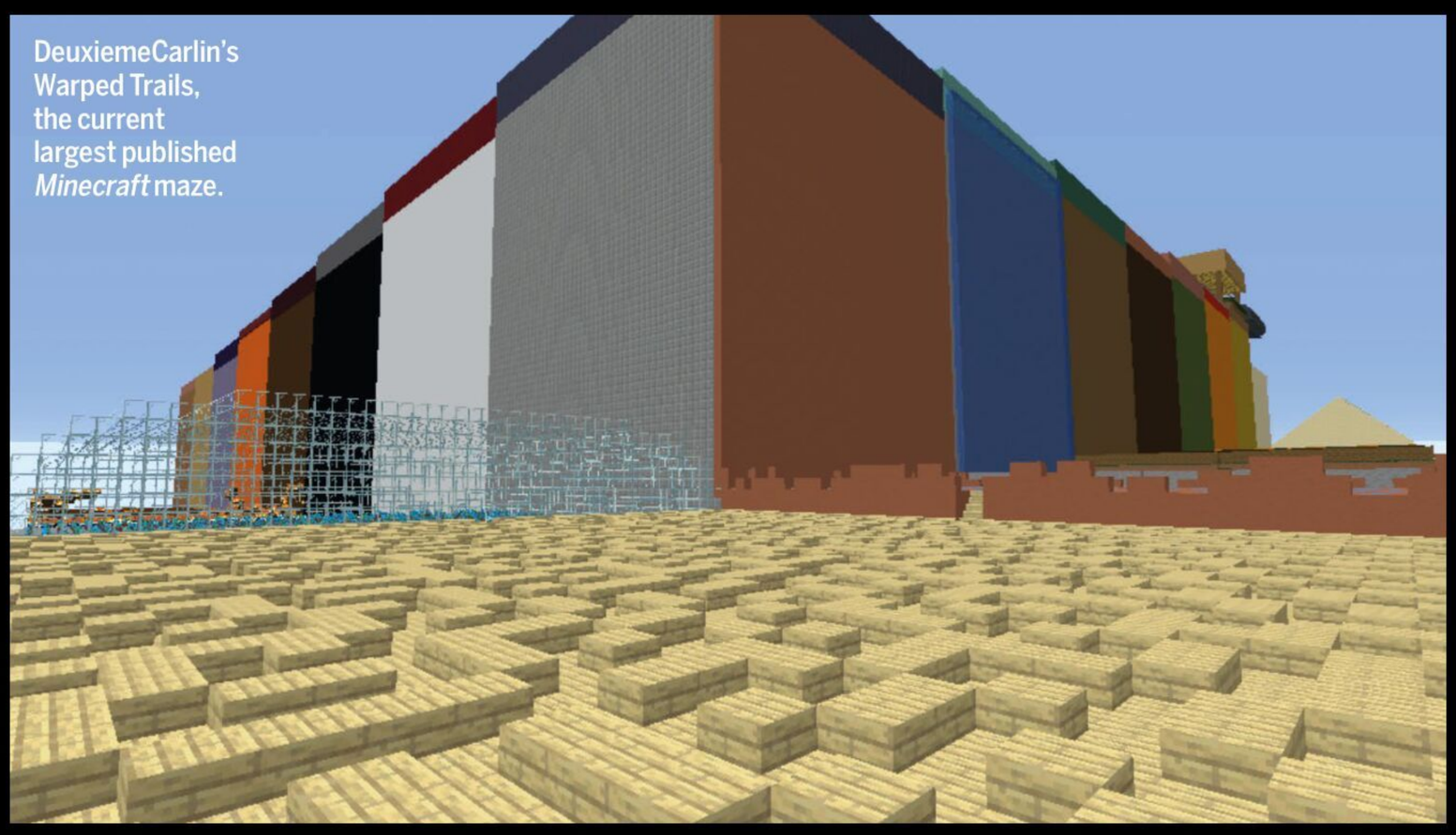
Unravelling the curious art and history of videogame mazes and labyrinths – from **AMNESIA**, *through* **MINECRAFT**, *to the Minotaur's lair...*

Wandering Not Lost

The history of mazes

The history of mazes and labyrinths is a maze itself. The first recorded labyrinth was commissioned by the Egyptian king Amenemhet III thousands of years ago: unlike the Minotaur labyrinth of Greek myth, this was built to be lived in, with banqueting halls, temples, and offices. Since then, mazes have been cut from turf, mosaicked on cathedral floors, stamped on coins, hacked into cornfields, formed by parking tourbuses, and fashioned from hedgerows as dallying spots for English aristocrats.

Mazes and labyrinths generate a surprising range of emotions. Partly, this is because the former isn't quite the same as the latter. The associations of the noun 'maze' are largely negative, referring to bewilderment, deceit and worldly distraction. A labyrinth is a similarly confusing structure, but the word has acquired more positive senses over time – it can serve as a place for reverie and contemplation. Psychotherapists like Dr Lauren Artress have even prescribed labyrinth-walking as a form of meditation. Integral to this distinction is the idea that while a maze may have many paths, a labyrinth has only one, however winding.


DeuxiemeCarlin's Warped Trails, the current largest published *Minecraft* maze.

OFF THE MAP

For a time, mazes and labyrinths were central to videogames. The original first-person shooter was arguably *Maze* (1974), created by students on Imlac computers at a NASA laboratory. While not the first of its kind, Namco's *Pac-Man* spawned a wave of 2D arcade maze-chase games in the 1980s. "I think a lot of how we understand moving through 3D spaces in videogames today comes from maze-like experiences," notes Holly Gramazio, game designer, curator, and scriptwriter for *Dicey Dungeons*, who once organised a maze exhibition for London game festival Now Play This. "Even going back to the Windows 95 screensaver maze, right? A lot of early 3D, even if it wasn't explicitly labelled a maze, is something that we would now consider maze-like."

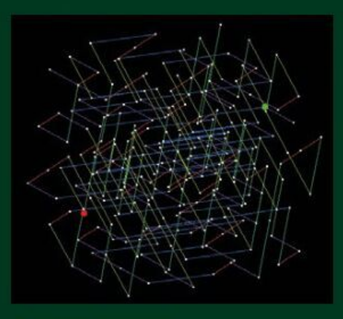
Mazes and labyrinths are a good introduction to 3D movement in games, Gramazio points out, because the premise speaks for itself. "You see them and you know what you have to do." They can also be a powerful "design prompt" she adds, in that they show how many different imaginative contexts and perspectives you can tease out of an ostensibly small area.

> **"Getting people to feel comfortable in their navigation of complex digital spaces is already quite difficult"**

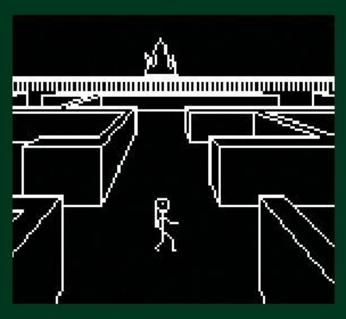
Computer simulations offer more elaborate possibilities for maze-builders, of course: they aren't bound by everyday physical conventions. In Alexander Bruce's *Antechamber*, ascending a flight of stairs may leave you on the same floor. In Ian McClarty's *The Catacombs of Solaris*, stopping to look around morphs the corridor ahead into a wall. For all these precedents and opportunities, however, mazes and labyrinths aren't much celebrated in games today. Maze environments are inherently artificial and arcane, and it's difficult to fit them into many stories and settings. But the real problem, perhaps, is that mazes and labyrinths aren't that fun to navigate – at least by the standards of games that define 'fun' as a brisk feedback loop between task and reward with minimal ambiguity or downtime.

"In a digital maze, you cannot separate people's frustration at their inability to find their way out from their frustration with the interface and how the maze is presented," Gramazio explains. "When people are stuck and can't find their way out, I think overwhelmingly the response is, 'This is bullshit, I can't figure out where I'm going.' It's not, 'OK, this is very clever, I need to stop and think about the choices I've made.' Getting people to feel comfortable and confident in their navigation of complex digital spaces is already quite difficult." Gramazio herself enjoys thinking about mazes but is less keen on walking them, in real life and otherwise. She came close to abandoning her first *Final Fantasy*

BUILD MORE *Resources for lovers of mazes and labyrinths*

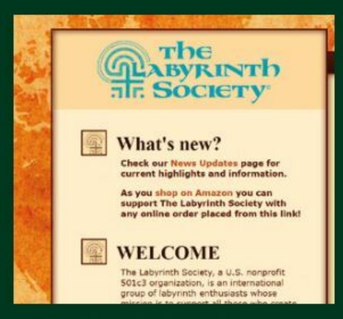


DAEDALUS
A free tool for building, analysing, and completing mazes that allows for the creation of specimens that have a billion passages or operate in five dimensions.
bit.ly/2YBDpP1



ASTROLOG
A burgeoning archive of maze and labyrinth materials run by uber-enthusiast Walter Pullen. Includes a whole section on cult Bowie extravaganza Labyrinth.
astrolog.org/labyrnth/glossary.htm

R/MAZES
The maze-makers' subreddit, packed with homebrew oddities of all kinds. Consider DeuxiemeCarlin's Disorienting Hallways, which unfolds inside of an owl.
reddit.com/r/mazes



THE LABYRINTH SOCIETY
A US-based collective of labyrinth sleuths. The site has a labyrinth locator and resources for constructing labyrinths at home.
abyrinthsociety.org

game, *Final Fantasy VIII*, thanks to a maze section where the same backdrops are used for different rooms. "I was in some kind of drain for fucking ever. I was in a drain that was basically the same four pictures of a drain representing 40 different places they could be in the drain."

BLIND CORNERS

Mazes and labyrinths might seem obnoxious in a role-playing game with random battles, but that claustrophobia makes them well-suited, of course, to horror games. Even here, though, developers can't afford to bewilder players too much. "I think there's probably a lot of great inspiration to draw from studying real-life mazes and labyrinths, but my guess is that most of it would be connected to aesthetics and general layout, and not so much about level design," comments Fredrik Olsson, executive producer and creative lead on Frictional's *Amnesia: Rebirth*. "In fact, most real-life mazes could act as examples of really poor level design – that's part of their nature."

Amnesia: Rebirth contains one of gaming's more horrible mazes. Dropped on you around the halfway mark, it's a grid of square pillars with paths formed by articulated metal gates linked to pressure panels. As elsewhere in the game, you can light torches to quell your character's mounting panic, but this risks attracting attention. There's a creature in the maze with you – half-human, like the Minotaur. As you explore you hear it ranting, growing more and more enraged as you near the exit.

Considered from on high, the maze isn't too demanding. It's closer to a single-path labyrinth than a maze, and there are unseen fail-safes (which I won't spoil) to help you reach the end. Paradoxically, mazes make it easier to add such handholds without damaging the illusion: as Olsson explains, developers can "capitalise on the confusion that naturally comes with the

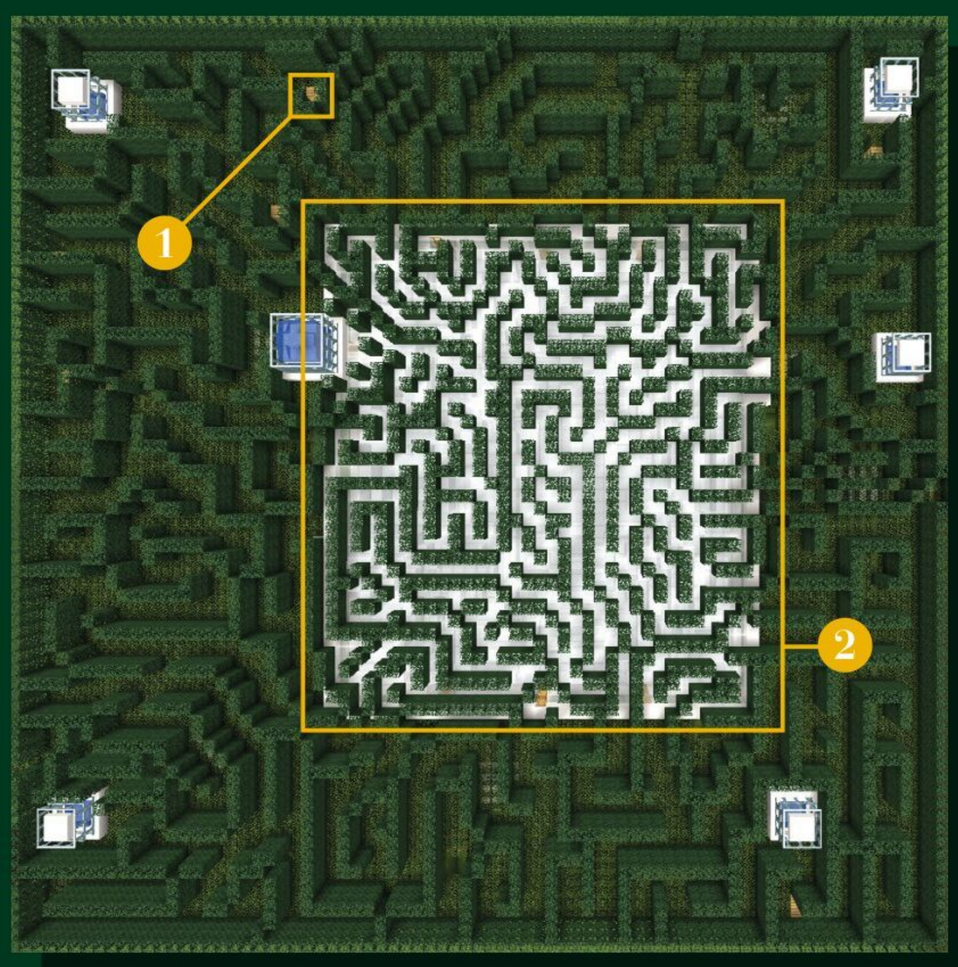
> **"Most real-life mazes could act as examples of really poor level design – that's part of their nature"**

AMAZING *Aris Martinian on the making of two* Minecraft *mazes*

HAYSTACK HALLWAYS

1 "Haystack Hallways, is maybe the quintessential example of a maze. In a way, I think this is the worst maze. It's boring, long and the volume of dead ends is something like three times the length of the critical path. Many of these dead ends have other dead ends branching off of them, so it's hard to know if you've found the right path."

2 "But halfway through, there is a bridge which you can climb to get a vantage point over the entire maze. From here you can plan the rest of your route. Additionally, there are several logs interspersed throughout, those little patches of white, which can either serve as landmarks or block off routes – sometimes both."



FOUNTAIN FOOTPATH

1 "A two-tiered hedge maze with a greenhouse inside. While you can only see the top here, there is another layer underneath that connects to the upper layer via ladders. The inclusion of a secondary maze, Garden Greenhouse, within the first allows for a dialogue between two spaces as you make your way through.

2 "Along the critical path, you enter the greenhouse on two separate occasions and walk on top of it another two times. This, along with the fountains throughout both the top and bottom layers, makes the space more interesting overall, and aids in the sense of progression, even as you seem to double back multiple times."

Control's brilliant shape-shifting Ashtray Maze, best combined with heavy metal.

introduction of a maze [...] to cheat the player in a helpful and discreet manner". During *Rebirth* Let's Plays, he observes, many YouTubers don't realise that they're making progress till they burst through the exit door. "[It] might feel like the design was extremely confusing and that they were just lucky. But [this is] actually a result of some subtle cheats that, at the right moment, simply open a way forward for the player, without them noticing."

PROBLEMS OF INFLUENCE

There are less obvious reasons to be appalled by *Rebirth*'s maze. The pillared layout takes limited inspiration from the Holocaust memorial in Berlin, a 19,000 square metre landscape of regularly arranged concrete slabs. The association, which I didn't notice during my playthrough, risks reducing real suffering to an aesthetic prop, though this claim obviously relies on you knowing about the game's creation. It's also a bit of a judgement upon the original monument – often described by journalists as a maze or labyrinth – which has been criticised for portraying the dead as a mass of interchangeable objects, burying their names in an exhibition beneath the monument. It's disturbingly easy to read as 'pure' architecture that can be readily transplanted into a different context. Olsson's insistence that the memorial doesn't have "any actual connection" to *Rebirth*'s events feels like a testament to this process of abstraction. "It was inspiration purely related to the spatial structure."

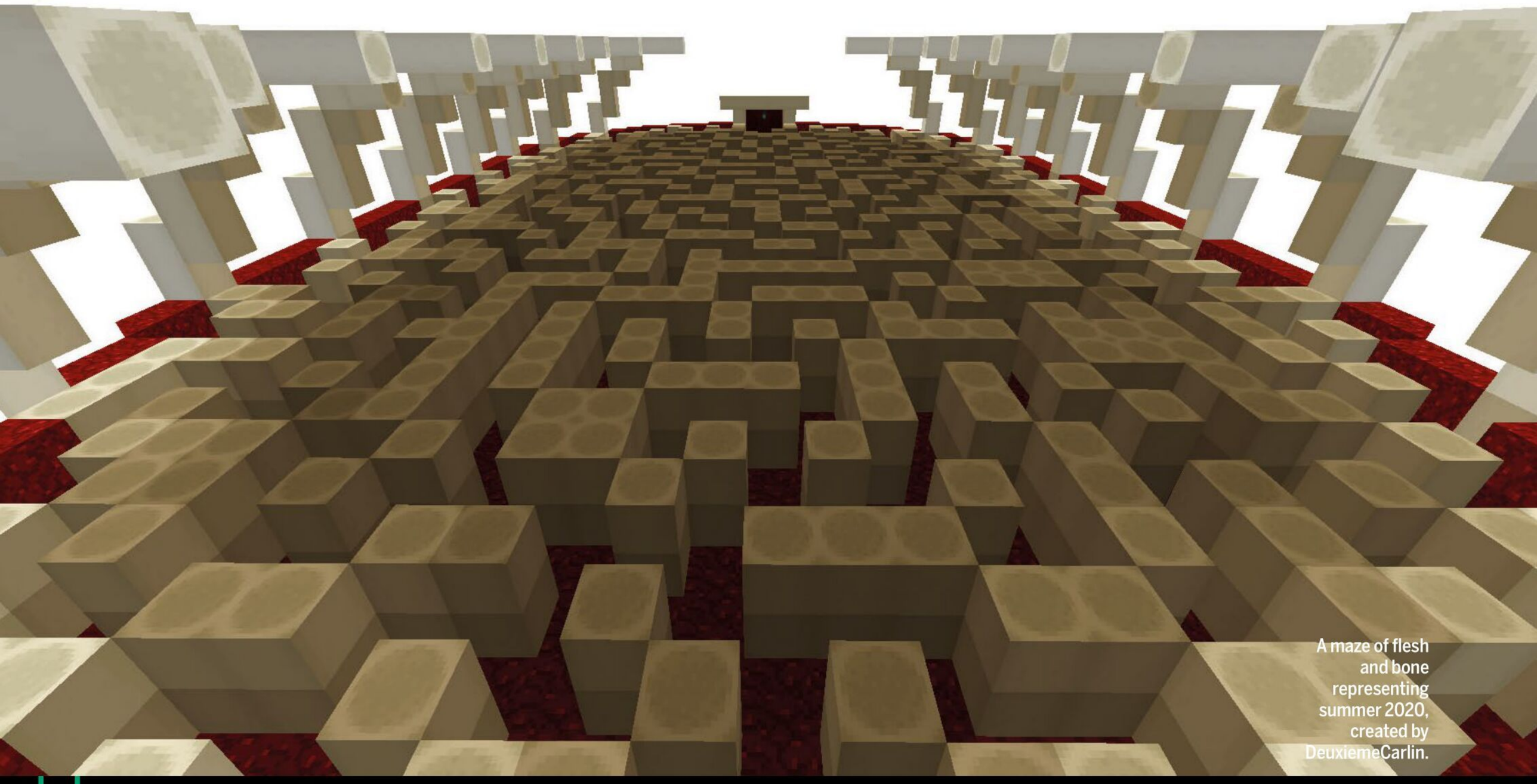
If there's no literal connection between the Holocaust and *Rebirth*'s events, themes of dehumanisation and genocide abound in the game's narrative. In *Amnesia*'s universe, terror is a kind of energy resource. As you'll learn if you read story artefacts in a control room just before the entrance, the maze was explicitly built to maximise the dread of the unlucky wanderer before 'harvesting'. The space explicitly objectifies you, in other words: it disregards your personhood and reduces you to your capacity for fear. The control room also contains a broken maze model that once allowed the layout to be changed for optimal effect. Peering down at it helps you imagine both the frenzy of those caught inside and the indifference of those pulling the levers.

An island maze built by *Fortnite* players Zesv, Noble and Alarm.

LAB TECHNICIANS

It's a far cry from the mentalities of amateur maze-builders online, many of whom do their finest work in sandbox editors such as *Minecraft*. These players try for more uplifting experiences: perplexity, yes, but also mystery, wonder, and the satisfaction of reaching the exit square. Indie designer and Sony/Kuju Entertainment alumnus Robert Swan has been exploring mazes since the days of *MIDI Maze* on the Atari ST (the latter's splitscreen PVP mode allows you to spy on your opponent – when playing with his brother, Swan used cardboard to block the view). He cut his teeth as a designer making games with Sony's Net Yaroze console at university, later gravitating to map creation in shooters like *Quake* and *Counter-Strike*. He also occasionally creates mazes from illustrations drawn by his partner Jodie Azhar, Teazelcat Ltd CEO and a former technical art director at Creative Assembly.

"I was an avid builder in *Minecraft* for many years along with my brother,



A maze of flesh and bone representing summer 2020, created by DeuxiemeCarlin.

and we built a maze just like everyone else on our continent," Swan says. "I think *Minecraft* always guides people to mazes as the simple orthogonal nature and procedural scenery looks maze-like to start with."

Talking to Swan reveals the diversity of approaches to maze building, some of which chime intriguingly with more mundane level-design questions. There are 'weave mazes', for example, where the paths loop under or over each other, which is a popular gambit in some multiplayer shooters. 'Braid mazes' have many paths but no dead ends. These can be especially tough for players, Swan notes, because "mentally we never 'close off' parts of the maze as solved". And then there are Recursive fractal mazes that harbour perfect smaller copies of themselves. "I think I've seen this touched on in some games but it can quickly spiral out of control in complexity – I haven't seen such a concept applied to a multiplayer first-person shooter, but it would be a fascinating experiment!"

For Arin Martinian, a 21-year-old musician, mathematician, and author from Massachusetts, the trick to maze design is giving the player the sense that they're getting somewhere, however sprawling and knotty the structure. Martinian draws a comparison with incremental games such as *Cookie Clicker*. "Even if the entire game revolves around clicking a single cookie and watching numbers go up, unlocking new things keeps the game interesting, and each buy gives the player the same satisfaction as solving a single sudoku puzzle. So when I build mazes, I like to provide landmarks, not just for ease of navigation, but also to capture that sense of progression."

Martinian has been building *Minecraft* maps since the young age of 13. If you have a poor sense of direction, their mazes may sound like the stuff of nightmares: highlights include the formidable Prismatic Puzzler, a seven-storey coloured glass tower that resembles a Death Star focusing array. But if Martinian's mazes are mind-boggling they are also considerately built, with bridges providing vantage points and a range of strong landmarks. All are designed to teach some measure of spatial reasoning and problem-solving. "When a maze has you doing this, instead of just blindly hugging the right wall and hoping you eventually reach the exit, I consider that a great success."

All are designed to teach some measure of spatial reasoning and problem-solving

Shalidor's Maze in *Skyrim*, home to one of the game's Dragonshouts.

BUILT TO LAST

DeuxiemeCarlin from Louisiana is the holder (at the time of writing) of the world record for *Minecraft*'s largest published maze. His magnum opus, Warped Trails, is a stratospheric endeavour that took around a month to create and has been successfully traversed by just seven out of thousands of players – the fastest run is around seven hours. DeuxiemeCarlin has been captivated by mazes since infancy, and is happy to make them out of anything. "Any material that can be twisted to form paths, I can develop a maze through: everything from a stack of DVDs to a Discord server to white furniture!" He enjoys mazes both for the joy of solving them and for their visual intricacy. "One theory I'm leaning towards in recent months is that it has something to do with the way my brain works, with high-functioning autism. And who says it has to be one [reason], but not the others? It could be a multitude of things!"

DeuxiemeCarlin considers maze-making an artform. "The same feeling people get when finishing a painting, or when composing music? That's the feeling I get when I make mazes." He emphasises the importance of variety – Warped Trails consists of 100 regions with different colour palettes and materials – and also advocates against repeating patterns or stretching out hallways for the sake of filling space. "Each region must be crafted with care, and attention to detail."

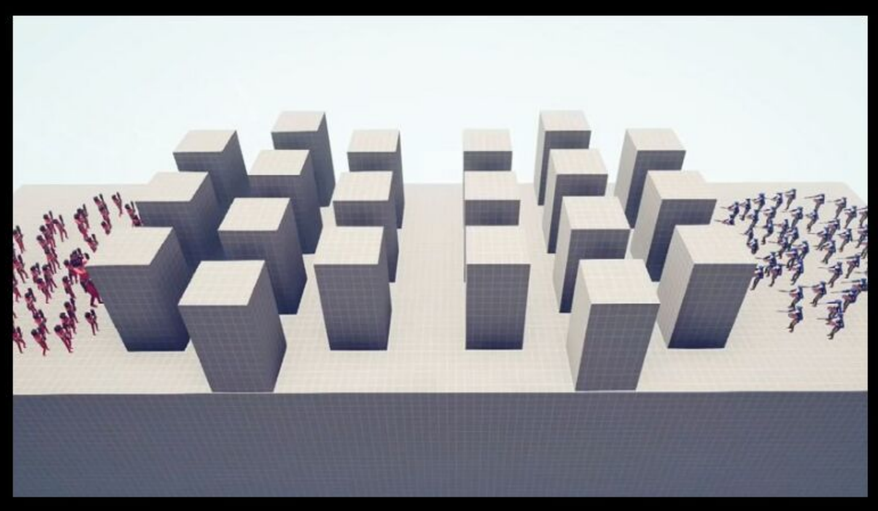
ELUSIVE WORDING

Mazes don't have to be physical structures or representations, of course. Some of the best are text-based. Itch.io is full of Twine games that are inherently labyrinthine, composed of many branching strands, and playing them is like fumbling around a maze with a blindfold. Sisi Jiang's *Theseus* seizes upon this comparison, while also embracing the mixed feelings mazes and labyrinths attract. In this retelling of myth, the Greek hero Theseus and the Minotaur are estranged partners rather than foes. Cast as Theseus, you must find your way out of a garishly painted labyrinth while playing out an imaginary argument with your beau.

The maze embodies the parental abuse experienced by both characters (the Minotaur, aka Asterion, is the sort-of-foster son of the king who imprisoned him). "It was meant to give the player tunnel vision, a feeling of a loss of control, and claustrophobia," Jiang explains. "It was important to me that a bad relationship did not solely involve the actors in the play, but the conditions under which they were meant to forge a connection."

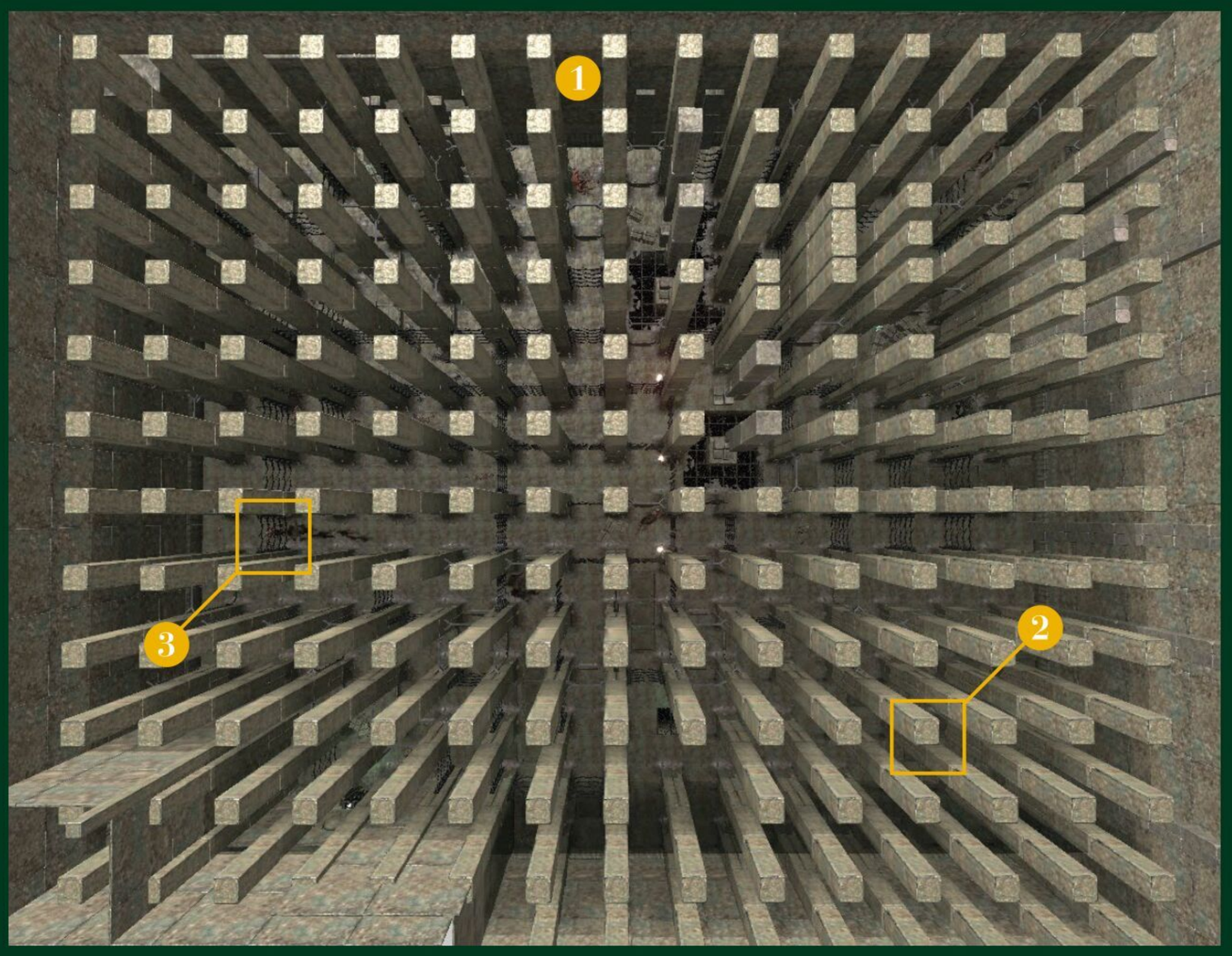
But the game also presents its labyrinth as "a space for emotional exploration" and "an emotionally secure place for failure". Each path corresponds to a branch of Theseus' internal wrangle with the Minotaur, displayed as floating text. 'Wrong' paths uncover the tenderness each character still has for the other, together with futile efforts at reconciliation. In the process, something essential is revealed about both human beings and the things we build. "[There are] no consequences for 'picking incorrectly' the first time," Jiang says. "And I think that accurately reflects a lot of our human internal processes – we have to hit tons of dead ends before reaching our truth." ■

Amnesia: Rebirth's scaled-down maze model – foreshadowing at its grimmest.



HUNTING GROUNDS

Fredrik Olsson on the making of Amnesia: Rebirth*'s fear labyrinth*



1 "In an ideal scenario most players would know about the fear production aspect going into the maze [...] having that fresh in your head as you take your first trembling steps into the maze adds another layer to the tension [but] the atmosphere in that section needs to be visceral enough to stand on its own."

2 "We tried a lot of different versions of a more generic maze approach but we didn't really have a strong structure to follow, not until the idea of the column structure and gating system emerged. From that point it felt like things started to progress without any major obstacles and it was more about tweaking areas."

3 "Some testers were too occupied with watching their surroundings, looking out for whatever made the noises around them, to notice the pressure plates. That led us to blocking off the player early on and having them move some debris off a pressure plate to progress – just to force the understanding of that mechanic."

What turns communities toxic? What makes fans abuse community managers? It's a matter of psychology.

By Luke Kemp

GROUPS OF WRATH

When I speak to Will Overgard, he's enthusiastic, friendly, and immediately likable; attributes which serve him well on Twitch, where he streams as Viking_Blonde. Bursting with energy, he gleefully chats with me about his previous life in the games industry working for companies including Creative Assembly, Improbable, and RocketWerkz. I warm to him within seconds. So why did three total strangers once wish him death by cancer? Why does *anybody* on the internet suffer threats and hatred from people they don't know? The answer (for community managers I've spoken to, at least) is complicated, and leads me to realise that you and I aren't as many steps away from such behaviour as we may like to believe.

Take another, particularly horrifying example of harassment that Will gave me: "A group of individuals came up with a horrible story involving children," he says. "They leapt into the YouTube comments and started telling the story at each other, like 'Oh, did you hear the story of Will doing this horrible thing?' 'Oh, I did hear that, but did you hear *this* fact?' 'No, I did not hear that, did you hear this fact?' And they tell this horrific story in the comments, and then upvote each other."

There's no shortage of people within the industry with similar horror stories. Today, James Bartholomeou works at PR firm Ico Partners, but for two years he was a community manager at Focus Home Interactive. Like any job, it involved both highs and lows, but one of the worst times was when a highly anticipated game he was looking after was repeatedly delayed. This infuriated some members of the community so much, things took a dark turn. "Eventually it got to the point where we were getting death threats," James says, with a casualness that actually shocks me. "I think I'm quite lucky in that I only got a few too, especially talking to other colleagues."

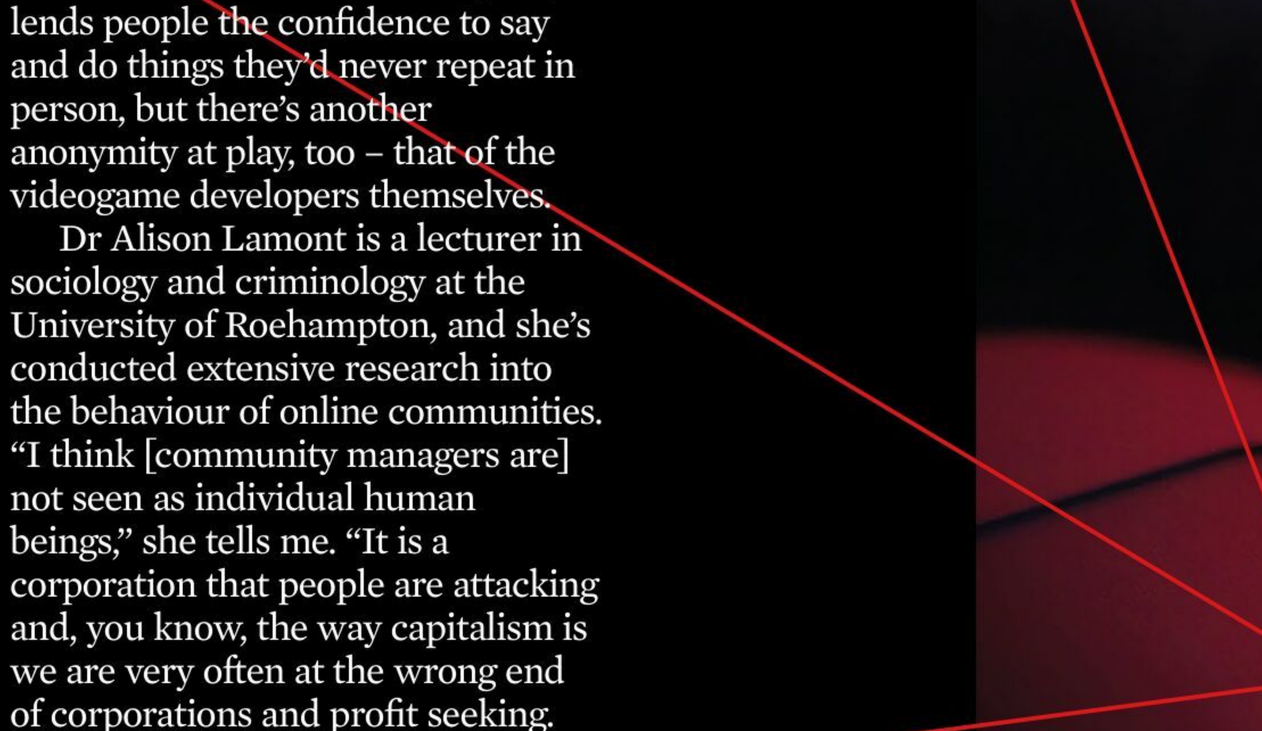
THREAT BOARD

But *why*? How do people become so vicious towards complete strangers managing the community of a videogame? It's worth noting that every community manager I spoke to told me that they never experienced any such vile behaviour at in-person events, nor would they ever expect to. It's no secret that online anonymity lends people the confidence to say and do things they'd never repeat in person, but there's another anonymity at play, too – that of the videogame developers themselves.

Dr Alison Lamont is a lecturer in sociology and criminology at the University of Roehampton, and she's conducted extensive research into the behaviour of online communities. "I think [community managers are] not seen as individual human beings," she tells me. "It is a corporation that people are attacking and, you know, the way capitalism is we are very often at the wrong end of corporations and profit seeking. And, yeah, it becomes, you know, fair

PROFILE

WILL OVERGARD
Twitch streamer and former community manager.



ABOVE LEFT: After a few *Black Ops II* multiplayer tweaks, design director David Vonderhaar received death threats.

LEFT: *Minecraft* is so phenomenally popular, it has both the best and the worst of communities.

THERE'S NO SHORTAGE OF PEOPLE WITHIN THE INDUSTRY WITH SIMILAR HORROR STORIES

game. 'Alright, why don't I just fire off some angry comments to these people who must be making loads of money?'" As Dr Lamont points out, community managers do *not* make loads of money. "I think this is getting into the issues with online communication ... [the] asynchronous aspect of it. It's not a real-time conversation. It's not connected, you don't see the whole of somebody's life so you tell yourself, 'I'll write this horrible message, but it's OK because they're in a really privileged position.'"

UNFAIR COMMENT

As tempting as it is to think that the likes of death threats and vile insults aren't delivered at in-person events

GAMES DONE QUICK

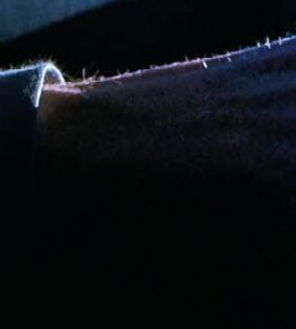
Communities can be great; money raised by GDQ's events

due to cowardice, this is a gross oversimplification that entirely bypasses the psychology that is at play. If you meet (for example) a member of a videogame development team for the first time, you have a real human person in front of you, and you act accordingly. If you're replying to some text on-screen, or if you're typing out something to an avatar on Twitter or a forum, you're not talking with someone. You're talking *at* some *thing*. At best, you're directing your thoughts to a construct in your head, a construct with no available evidence to prove or disprove its accuracy.

The opaque nature of game development was often cited to me as exacerbating existing problems, inflating grievances because communities don't understand how games are made. And how could they, if nobody is telling them? One example of a negative community reaction cited to me by just about everybody I spoke to, including Dr Lamont, was Hello Games' *No Man's Sky*, and the ferocious backlash it suffered when the finished product didn't match the initial reveal. Game development is iterative, with multiple changes along the way par for the course. With none of this visible between announcement and launch, many people had been expecting a game that matched the very first trailer precisely.

There's anecdotal evidence that being transparent about development, and putting names and faces to individual members of a development team, can minimise toxicity within a community. Max Downton is senior brand manager at Splash Damage. While he's no stranger to negative behaviour in communities, his experience has largely been a positive one, something he attributes in part to encouraging transparency in the development process.

PROFILE



MAX DOWNTON
Senior brand manager at Splash Damage.

GIT GUD BEHAVIOUR

"One of the things that I was really pushing the company to do is to actually put names and faces out into the public," Max tells me. "I've always believed that by putting out names and faces you can undercut

TOXICITY IS NOT A VIDEOGAME PROBLEM – IT IS ACTUALLY A HUMAN PROBLEM

THREE SPEECH

There actually are some lovely communities out there

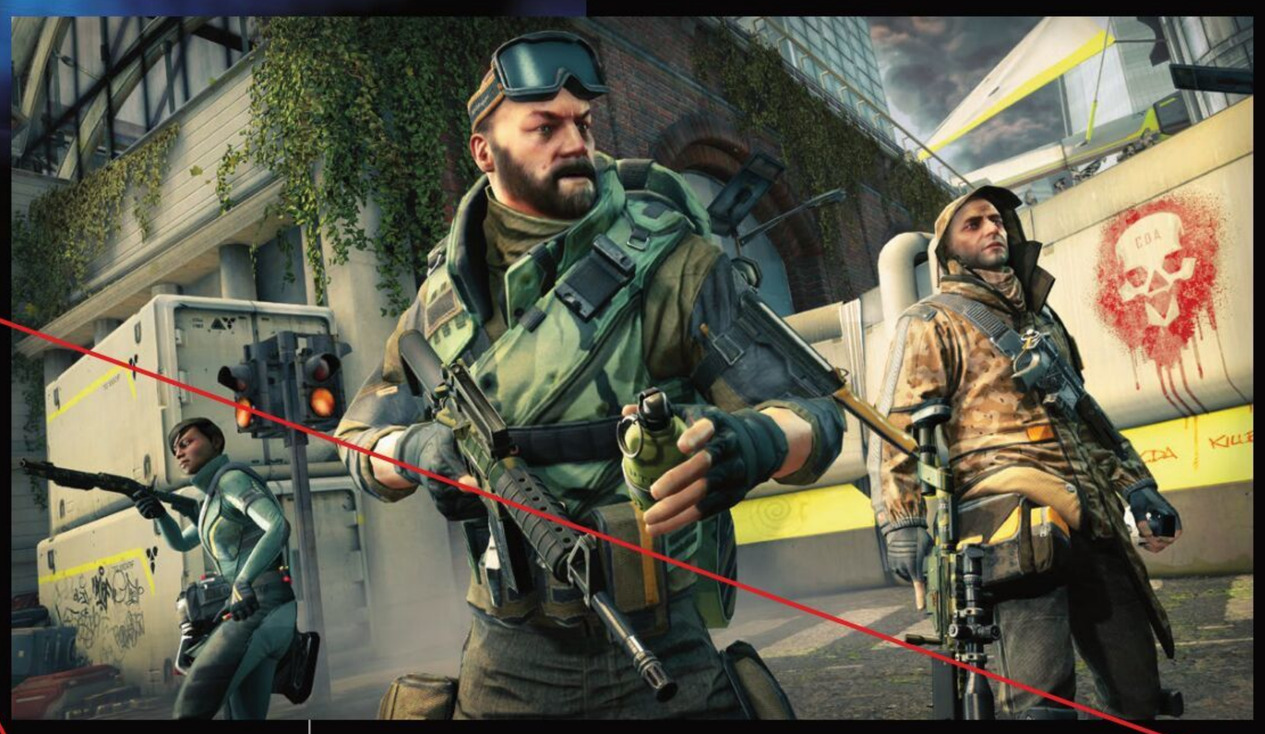
DARK SOULS TRILOGY
Sure, you can invade (and be invaded by) other players, but there's no shortage of friendly *Souls* fans willing to help others within the community.

STARDEW VALLEY
With a subreddit full of joy and fanart, it's little surprise that the 2021 five-year anniversary saw gratitude from developer and community alike.

SEA OF THIEVES
It's become so popular, the presence of some bad eggs is inevitable, but there's no shortage of friendly pirates willing to sail you through the basics.

any of that kind of anonymous hatred, because I think my belief was that people would find it much more difficult to be hostile and aggressive and rude to a human."

It's important to remember that toxicity is not a videogame problem – it is a human problem. Dr Lamont surprises me by telling me that similar behaviour arises in fine art communities. "Some of it's horrendous," she says. "People have had exhibitions close down, people have had serious talks with funders about whether or not the funders are still happy to support an exhibition...



ABOVE RIGHT: Splash Damage, developers of *Dirty Bomb*, strove for transparency to prevent community toxicity.

RIGHT: *The Sims* community is full of people sharing jokes, mods, screenshots, and stories.

this is an internet communication issue, I think, much more than it is a videogame issue."

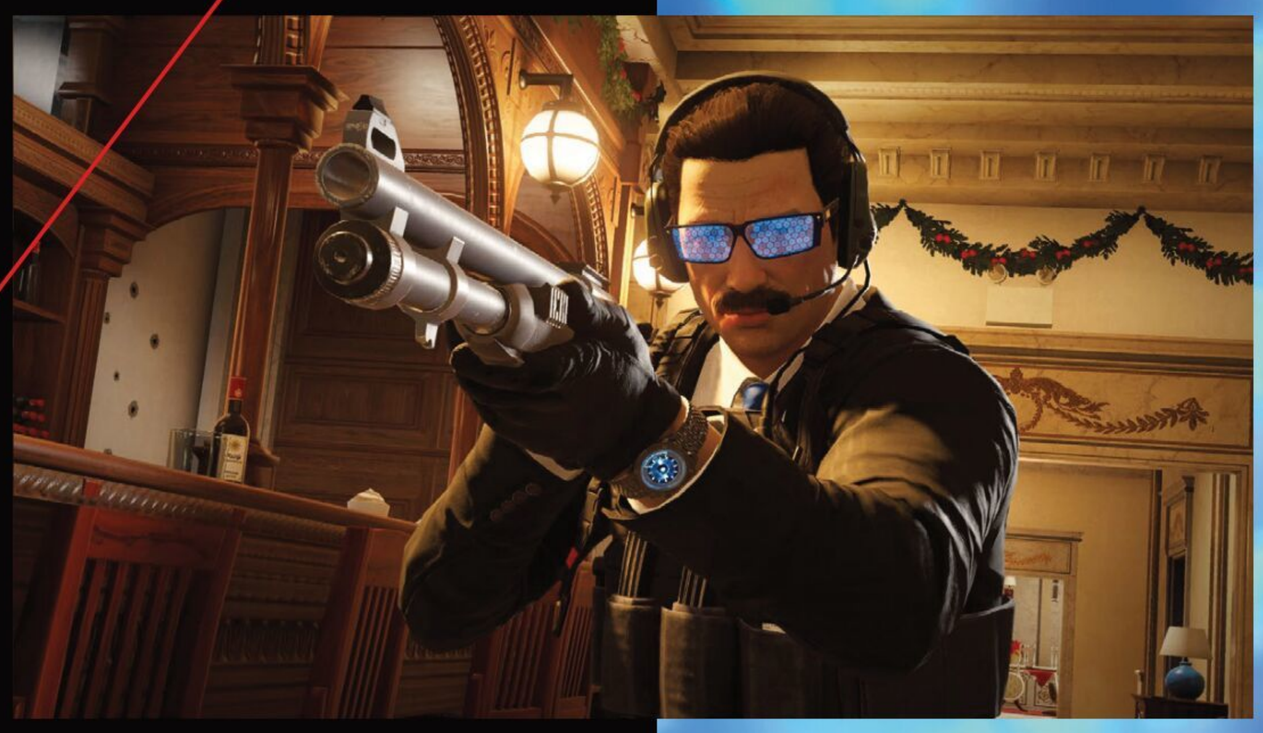
Toxic, poisonous behaviour is – whether we like it or not – a very human thing that will never go away. For all the good that it's brought to the world, modern technology – and specifically the internet – has proven to be the ideal breeding ground for the darker side of human nature. Once you sever the human connection, reducing other people to words and images on a silent screen, negative behaviour is never very far away. Most of us would never dream of intentionally hurting a stranger, but a cold and distant bundle of words that say something we don't like? So what? In this way, the internet combines dehumanisation with an unprecedented ease to doing harm to create something quite sinister. Referencing the book This is Why We Can't Have Nice Things by Whitney Phillips, Dr Lamont considers the example of the YouTube comments attack on Will in the context of trolling.

ROCK AND TROLL

"For some people, that is entertainment, just seeing somebody get worked up and knowing that they can't touch you and they can't get back at what you're saying. I think that ultimately that's what the dynamic probably is.

"You could sit with a friend and chat and say it would be hilarious to have a go with this guy and just watch him lose his temper online, and there's nothing [they] can do about it. 'Let's do it!' I can't think of a non-virtual forum which would enable you to do that so fluidly."

You would perhaps expect that being part of a group would keep everybody in check, nobody wanting to embarrass themselves in front of their peers. The opposite is true,



however. Sometimes, when negative behaviour begins in a community, it's easy for it to spread if it is not very quickly stamped out – and people can begin to engage in behaviour they otherwise never would have. It could happen to any of us, given the right circumstances.

Dr Dean Burnett is a neuroscientist and author who's written about everything from mental health, to why you can walk into a room and then forget why you went there. He explains the potential for extreme behaviour within groups in terms of something that is called group polarisation. "We're social creatures, but we're also very hierarchical, we are really concerned with status, we want to be respected by others, we want them to look up to us or like us... the main way we do it is to earn the approval of the group. So if you have a group that is consistent in that we all think this one thing, we all believe this thing... you try to embody the group beliefs as much as possible."

Nonetheless, there's no reason to give people who engage in hateful behaviour a free pass. Repugnant personal beliefs can certainly play a part. When I asked community managers if there were any issues more likely than others to spark controversy or toxic behaviour, I was time and again told that introducing any kind of diversity – or even acknowledging that it exists – was a point of contention for toxic elements. Max tells me of one innocuous example that resulted in some pushback.

TOXIC CRUSADERS

"We did a video series called Ask Splash," he says, "which was, like I was saying, about putting faces out there, with their job title and people talking about what their role is and what their favourite games are. And one of the first videos that we did just so happened to be an International Women's Day video. And it's so inoffensive, it's just 'here's a bunch of women who work at Splash Damage, here's what they do'. And I think one woman said 'you know, in my experience, it has been kind of difficult sometimes for these reasons'. Obviously, that garners negative reaction."

"Some people point towards ideas of masculinity," says Dr Lamont, "and the idea that gaming communities have become, or were originally seen as, very male spaces which are now being infiltrated by non-white, non-male players, and that kind of defensiveness again that goes back into this idea of identity and trying to protect an identity, [regardless of] the validity of that identity."

BEING FACED WITH EXTREME NEGATIVITY AND HARASSMENT CAN TAKE A TOLL

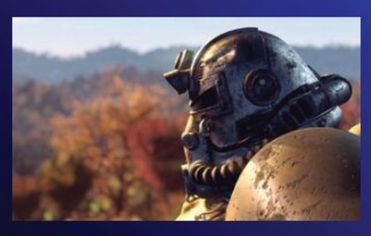
Community managers are individual, real, human beings; and being faced with extreme negativity and harassment can take a toll. In February, videogame charity Safe In Our World announced a free mental health training programme for community managers. James is incredibly happy to see the initiative. "It's huge, and I'm surprised it wasn't done earlier," he says. "I left community management because of harassment and stress. I started having stress ulcers." Hopefully, this

TRIPLE TROUBLE

These launches were memorable for all the wrong reasons

NO MAN'S SKY
The game was far from what was seen in the first trailer, and players were not shy about yelling at Hello Games about it. They weren't loving the alien.

CYBERPUNK 2077
A vicious, vocal minority of fans *defended* the game with toxic behaviour prior to release – then turned their anger onto CDPR when the game arrived.



FALLOUT 76
Some fans were ferocious when *Fallout*'s take on MMOs launched buggy, a situation that Bethesda's reluctance to comment on only made worse.

TOP: Getting just five matches of *Rainbow Six Siege* in a row without teamkills is depressingly tricky.

ABOVE: Creative Assembly (*Total War*) is just one studio where Will served as community manager.

course will be the first of many such initiatives to come.

Despite the negativity and often terrible consequences, there's still a positive side to game communities, something that everybody I spoke to was keen to emphasise. James, in fact, provided one example that stood out to me. It's his belief that niche games are more likely to foster positive communities, something that he saw with *Spintires: MudRunner*.

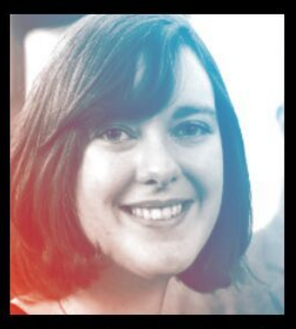
TRUCKING AROUND

"[People like to] drive their own trucks [which they own in real life]. You would have people come into the group and say 'Hey, I'd like to buy *Spintires: MudRunner*, but I noticed it doesn't have...' whatever truck they had, and you would have modders be like, 'Oh, I'll do that for you.'"

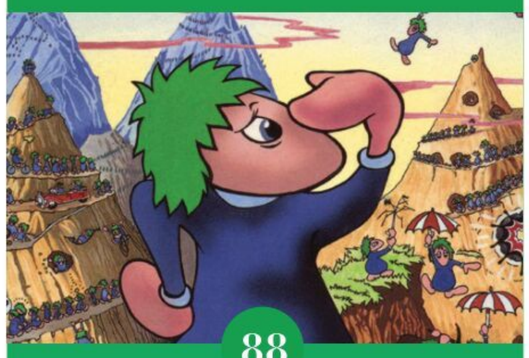
Although they get lost in amongst the headline-grabbing negativity, gaming communities are dotted with little acts of kindness like this all over, which can even extend to more meaningful help such as with medical bills. The positive, as with the negative, can be explained in sociological terms. As Dr Lamont explains, "With the emergence of this always-on interconnectivity comes the possibility to have an awful lot of weak social ties with lots and lots of different people," she says. "You can pull a lot of energy and resources through that ... [if] you're tapping into your gamer connections nobody's going to donate, say, £100, because they don't know you that well, but you might know 100 people who all chip in £1."

Ultimately, the benefits of online communities of all kinds in the modern world outweigh the drawbacks, something we should remember. As Dr Burnett tells me, they are "giving people a sense of community, a sense of status, a sense of appreciation, friends... These are fundamentally important parts of what the human brain requires. I think hopefully, through [the pandemic] will be a reappraisal of whether online relationships or online connections are valid or not, because clearly they are keeping people afloat and that should be acknowledged in the future". ■

PROFILE



ALISON LAMONT
Lecturer in sociology and criminology at the University of Roehampton.



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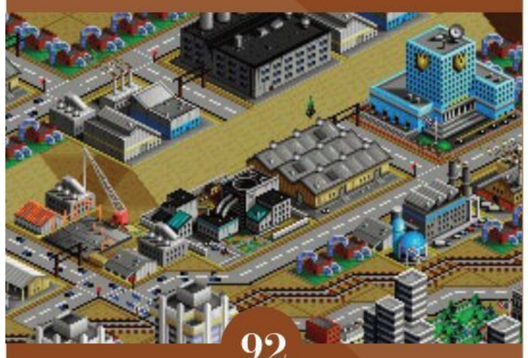
EVE ONLINE



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SIMCITY 2000

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LEFT 4 DEAD

PC GAMING LEGENDS

Eight games that have defined PC gaming – and defined us as PC gamers

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DEFINING GRAPHICS CARDS

Plenty of games can claim greatness – whether acclaimed hits, or cult classics. Only a handful can claim to have changed the industry, and players, forever. Over the following pages are eight that hold that honour. Not only have they helped define PC gaming, they've defined us as PC gamers. And we're also celebrating the hardware that made them possible, with a look back on the graphics cards that shaped PC history.

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HALF-LIFE 2

HALF-LIFE 2

RAISING THE BAR

The subtle, hands-off storytelling of HALF-LIFE 2 is still hard to beat. *By Andy Kelly*

The magic of *Half-Life 2* lies in how it tells its story. In most games developed in the early 2000s you're forced to endure endless exposition about the world and the state it's in – usually in the form of cutscenes. In *Half-Life 2*, a few scraps of old newspaper stuck to a notice board achieve the same goal; and in a much more evocative way. In the secret laboratory of eccentric scientist Isaac Kleiner, this entirely missable detail refers to a "seven hour war", Earth surrendering to the invading Combine, and villain Wallace Breen being declared administrator of Earth.

It's everything you need to know in one unassuming texture file – but also, importantly, it leaves enough of the finer details out to let your imagination run wild. This is more effective than an elaborate, expensive cinematic showing the Combine invasion of Earth would ever be, and puts you on a level playing field with Gordon Freeman. Having just been yanked out of stasis by the G-Man, he knows as much as you about this bleak, Orwellian nightmare world; that is, 'not much', which only adds to the unsettling mystery of how Earth ended up like this.

This kind of environmental storytelling continues throughout *Half-Life 2*, painting a more detailed picture of everything that happened while Freeman was on ice. And as you learn more about the invaders' infrastructure, the extent of their assault on the planet becomes chillingly clear. At several points in the game you catch glimpses of Stalkers; human bodies gruesomely retro-fitted with alien technology, turned into mindless slaves. Seeing one out of the corner of your eye is, again, more affecting than having someone sit you down and tell you everything about them.

FREE REIN

Half-Life 2 is a game that plays to the strengths of the medium, using player agency as a way to tell a story in a more interesting, intimate way. It's also a masterclass in subtlety. When it's time to travel to Ravenholm, an abandoned town infested with headcrab zombies, all Alyx says, gravely, is, "We don't go to Ravenholm." And that's all it takes. That sentence is absolutely loaded with meaning, and it also makes your first tentative steps into the place scarier. What did she *mean* by that? Valve understands the power of holding back, that less is more, which is something that eludes many developers even now, 16 years later.

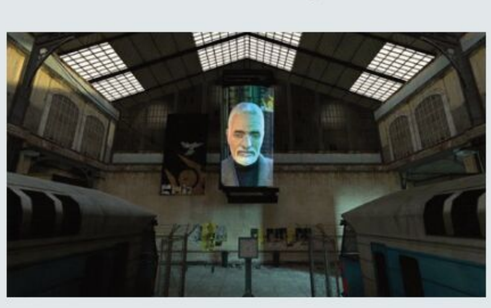
Of course, storytelling is just one part of the package. *Half-Life 2* is also a great FPS, with the gravity gun adding an improvisational feel to its firefights. Switching to this once revolutionary physics-manipulating weapon when you're backed into a corner, plucking a saw blade or radiator out of the level and transforming it into a deadly weapon, still feels incredible. The raid on Nova Prospekt, the brutal Combine prison, is tense and thrilling, and working with the resistance in City 17 towards the end of the game features some superb set-pieces.

If you haven't played it for a while, you might wonder if the people who still eulogise *Half-Life 2* are half-remembering it through a mist of nostalgia. But play it and you realise that, although it has aged in some ways, it still feels like an important, landmark game. It still delivers as a first-person shooter, and the way it relays its story is still wonderfully subtle and restrained. It's also exciting to revisit when you consider that Valve may be falling back in love with the series. The end of VR prequel *Half-Life: Alyx* dramatically opens up the very real possibility of a *Half-Life 3*, teeing up a sequel I'd lost all hope of ever being made. ■

TOP LEFT: Freeman drives his junker of a car along Highway 17.

VALVE UNDERSTANDS THE POWER OF HOLDING BACK, THAT LESS IS MORE, WHICH IS SOMETHING THAT ELUDES MANY DEVELOPERS EVEN NOW

BIG CITY *Key locations in City 17*

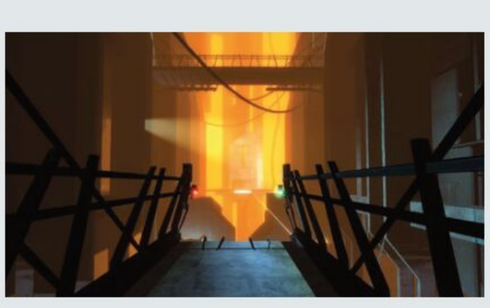


TRAIN STATION

Freeman arrives in City 17 by train, meeting oppressed citizens and enslaved Vortigaunts, all watched over by the ever-present digitised mug of Wallace Breen, the human face of the Combine invasion force.

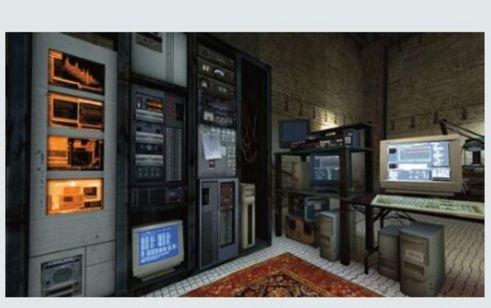
CITY SQUARE

Emerging from the train station, Freeman gets his first glimpse of the Citadel, the sinister headquarters of the Combine. The city's distinctive Eastern European architecture is especially prominent here too.



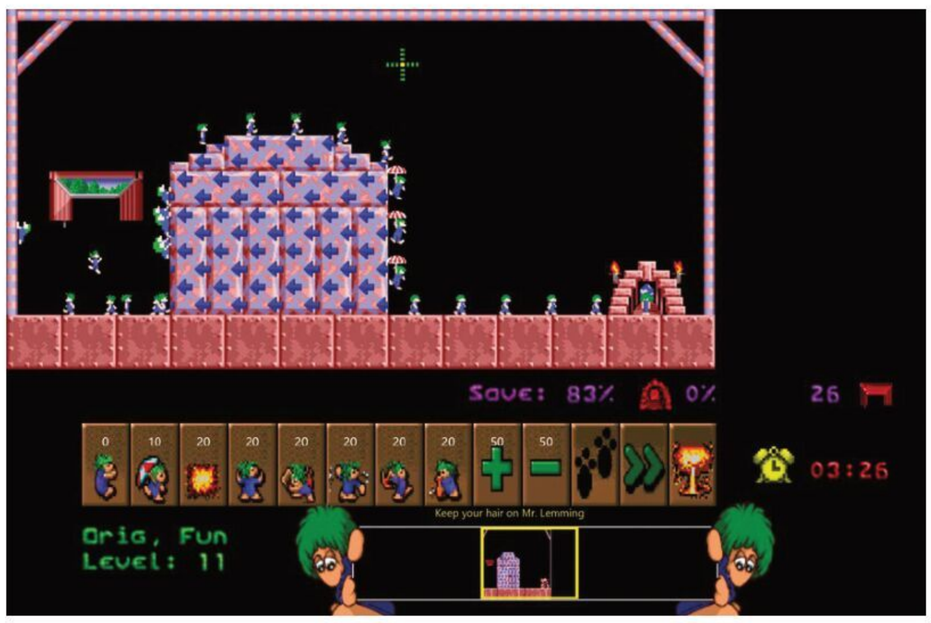
CITADEL

Freeman eventually makes his way into the Citadel, confronting Breen and his alien lackeys. Inside we see the Combine forces being created, including a production line of War of the Worlds-inspired Striders.



SECRET LAB

One of the few safe places in City 17. Here Freeman is reunited with Isaac Kleiner, a colleague from Black Mesa. And if you pay attention you'll learn a bit more about how the Combine conquered Earth.



FAR LEFT: The game began life as a single animated sprite created by DMA's Mike Dailly.

LEFT: *Lemmings* is one inspiration for a remote-controlled golem army in Terry Pratchett's Interesting Times.

FALLING IN LOVE

LEMMINGS still haunts my nightmares almost three decades later. ***By Edwin Evans-Thirlwell***

The medieval historian St Bede – aka The Venerable Bede, which really ought to be a band name by now – once compared life to a sparrow's flight through a banqueting hall on a winter night: a moment of light and warmth, bookended by darkness. I sometimes like to think of DMA Design's *Lemmings* as a modern reworking of this existential fable, with a couple of major differences. Firstly, it's about stupid rodents rather than birds, and secondly, it unfolds in a kind of Brighton Pier version of hell, all novelty crystals and gold pillars set to unholy chiptune renditions of songs like London Bridge is Falling Down.

Unlike Bede's sparrow, the lemmings need a bit of direction. They drop from a magic window and trundle brainlessly left or right unless otherwise ordered. Your goal is to get them through this souvenir-stand underworld against the clock, by assigning skills such as digger or climber. On the other side of both the entrance and exit portals lies not wintry oblivion, but a heavenly vista of green slopes and blue skies.

If the moral of Bede's fable is to savour every conscious moment, the moral of *Lemmings* seems to be that life is a nasty interlude full of spikes and lava pools, to be navigated as quickly as possible.

RUSH MODE

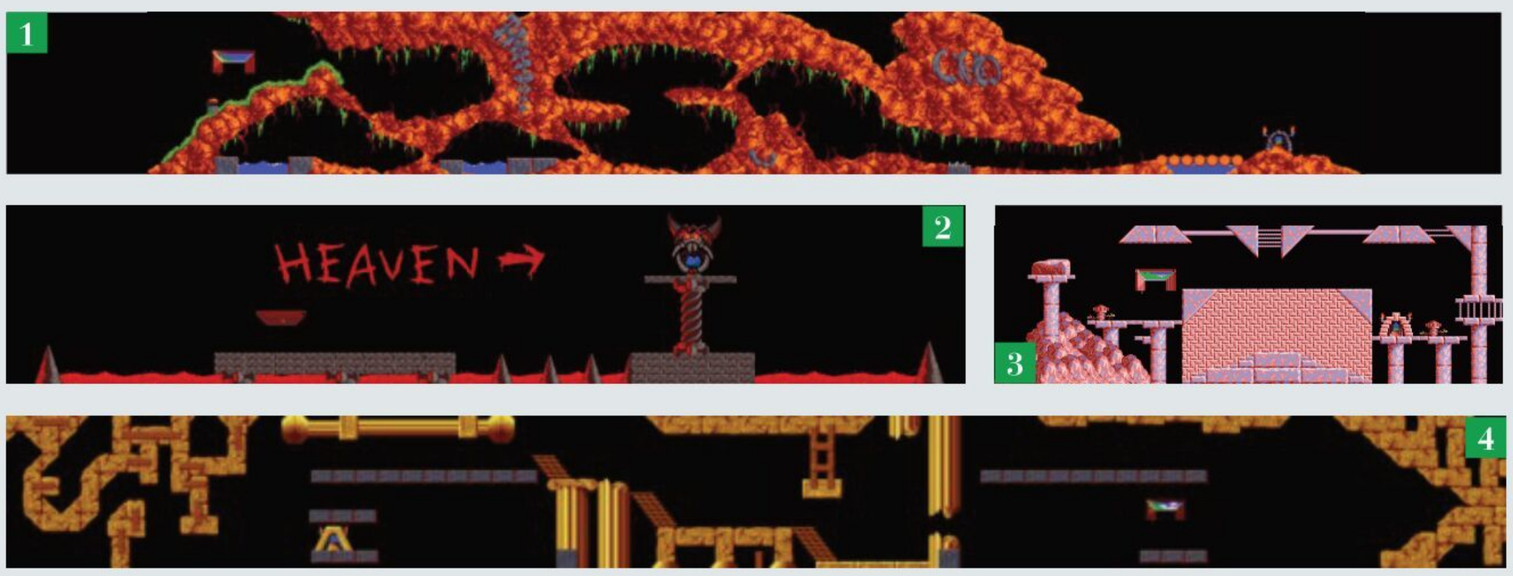
I was seven when I first played *Lemmings*, and it properly did a number on me. I was immediately panic-stricken at the thought of taking responsibility for creatures who are their own worst enemies – creatures who seemingly exist only to traumatise anybody with a protective streak. But once I'd begun, I couldn't let go. Who else, after all, was going to guide these hapless vermin back to their happily-ever-after? *Lemmings* was the game that taught me to empathise with make-believe entities, and I glimpse its mop-haired spectre in every management sim I play today.

The game isn't that difficult to begin with, but mistakes are easily made. Perhaps you've forgotten to set one lemming as a blocker, in order to box in the horde while you send out a lone builder to bridge a gap. Perhaps you've forgotten that there are only so many of each skill to go around: you can't just make every last lemming a floater as they toddle off a cliff. Either way, any oversight transforms the level into a slaughterhouse line, with freshly dropped lemmings dutifully repeating the errors of their siblings, death cries blending into a single, garbled scream. I'm aware there are worse ways to be introduced to the concept of dying, but try telling that to little infant Edwin, bawling his eyes out at the altar of a Macintosh Performa. Better yet, tell little infant Edwin that you can pick skills while the game is paused. Somehow I didn't work that out until 1999.

YOUR GOAL IS TO GET THEM THROUGH THIS SOUVENIR-STAND UNDERWORLD AGAINST THE CLOCK, BY ASSIGNING SKILLS

The other terrible thing that *Lemmings* teaches you is that certain deaths are necessary. Many levels only require you to save a certain percentage, and some lemmings are difficult to retrieve once they've performed their allotted tasks. Blockers, especially, are the most tragic of lemmings, unable to resume walking once deployed unless you send a digger to undermine them. The game's cruellest touch is that it requires you to kill any lemming that can't be saved – individually or, when time is short, care of a big old nuke button. Condemned lemmings don't go quietly into that good night. They shriek and clutch their skulls until they burst. DMA Design, of course, would go onto create *Grand Theft Auto* – a much bloodier game, but for my money, it's actually nowhere near as harrowing. ■

WHITE WILDERNESS *Four of the absolute worst* Lemming's *levels*



1 THE STEEL MINES OF KESSEL
Dig a path using the exploding lemmings but don't kill more than 90%, and make sure you blow up any blockers that you've left behind.

2 HEAVEN CAN WAIT
You don't have any blockers, so you'll need to trap your lemmings in a pit while creating the route. And do it all in just under two minutes.

3 JUST A MINUTE (PART TWO)
Sixty seconds of frantic wrangling with diggers, bashers, and climbers. You need to hold back the crowd but you also can't afford to dawdle.

4 SAVE ME!
You have to land a lemming on a ledge, then build a staircase and transform that lemming into a blocker, before the others walk off the edge to their deaths.

EVE ONLINE

FOUND IN SPACE

How the terror and tenacity of EVE ONLINE changed my life. *By Steven Messner*

I'll never forget my first real fight against another player in *EVE Online* – it had taken me, a fresh-faced noobie at the time, almost a month to scrounge up the ISK to buy a beloved Catalyst destroyer, and now I was about to lose it fighting a player in a vastly more deadly assault frigate. As my shields evaporated in a single volley, I began shaking so severely from the adrenaline rush that I couldn't accurately use my mouse anymore.

Dying in *EVE Online* is intense. Unlike most other MMOs, where you can simply respawn with all your stuff and carry on with your quest, a destroyed ship is gone forever. That loss stings if you don't have the ISK to immediately purchase a replacement. But while I raged in the moment, those memories are some of the strongest I've had playing any PC game. It meant something to lose that ship. There were stakes beyond good and bad endings or plot twists triggered by dialogue choices. *EVE Online* was the first time I felt the consequences of my actions in a game. The emotional highs and lows that came as a result have defined not just how I think about PC games, but also my career.

SPACE TO GROW

So much of what I've come to love about PC gaming is present in *EVE Online*. It's complex and takes a lot of patience and persistence to understand. Players are given unparalleled freedom in deciding not only what they want to do, but how they fit into the greater *EVE* community, and it's a game that consistently rewards quick wits and clever strategising.

When I first started playing it back in 2012 on a 13-inch Macbook (forgive me), it was my first real exposure to these kinds of PC games that just don't exist on consoles. I didn't know it at the time, but *EVE Online* was the beginning of my transformation into a PC gamer. Though I had always played games on PC, like *World of Warcraft* and multiplayer shooters, *EVE* was a gateway drug that led me to *Mount and Blade* and *Path of Exile* – intimidating and hopelessly complex games that feel almost infinite in their scope. These are now some of my most-played games of all time.

But *EVE Online* is also the one game that got me to where I am today as a senior reporter at PC Gamer. When I was 25 years old, I decided to make a wild pivot and chase my childhood dream of writing about videogames. And because I loved *EVE Online* and the wild space drama that erupts from it on an almost daily basis, I had a hunch other people might like those stories too. My first-ever pitch was to PC Gamer and it was about a band of ruthless murderers in *EVE*. My hunch was right, and my *EVE Online* articles helped establish me as a full-time freelance writer before joining PC Gamer. Since then, I've had the pleasure of writing about everything from *EVE Online*'s cunning pirates to how a scam turned into the game's greatest rescue mission. I've travelled to Iceland, Las Vegas, and Finland for these stories.

EVE Online is an MMO that transcends how I normally think about games and the people that play them. It's a weird alternate universe experienced only through the cockpit of ships that are typically only seen as small icons floating in space. But when those icons start shooting at each other, incredible stories of betrayal, loyalty and karma begin to materialise. I'm not being hyperbolic when I say living, hearing and telling those stories for the past decade has changed my life. ■

LIFE IN SPACE *Five career paths you can take in* EVE Online

PIRATE

Pros

- An exciting life of crime
- Fly fast, extremely powerful ships in small gangs
- Can get rich if you rob a wealthy player

Cons

- Being a criminal makes you a big target
- Can go long stretches without a good ambush
- Good ships are expensive

SOLDIER

Pros

- Get to fight alongside thousands of players
- Ships losses are often reimbursed by your alliance
- Easy to make friends with your teammates

Cons

- Battles sometimes last up to 16 hours or longer
- Bureaucracy can be annoying

MERCHANT

Pros

- Can play whenever you want
- Can become outrageously wealthy with some effort
- Not many risks

Cons

- You'll definitely need to make a spreadsheet
- Kind of dull career
- You'll need to babysit market orders in order to beat out competition

WORMHOLER

Pros

- Explore *EVE*'s scariest, most dangerous regions of space
- Often dragged into thrilling games of cat and mouse
- Can work together in small groups and make big bucks

Cons

- Steep learning curve and extremely dangerous
- Always have to be paying attention to surroundings

EXPLORER

Pros

- Solo-friendly but can still make a lot of money
- Get to sneak into hostile territory and avoid players
- Easy to get into

Cons

- Can go long stretches without making much money
- Have to be paying attention at all times to avoid enemy ambushes

SO MUCH OF WHAT I'VE COME TO LOVE ABOUT PC GAMING IS PRESENT IN EVE ONLINE

BUILD ME UP

The joys of creation and destruction in SIMCITY 2000.

By Chris Livingston

I don't think city-building games, despite the perspective of looking down on all the tiny people and making decisions that can bring them happiness or ruin their lives, really make me feel like a god. I usually feel more like a Peeping Tom mixed with an exasperated parent. I delight in just spying on my citizens to see what they're up to, and getting annoyed when they need something from me. "Fine, I'll build you a hospital! Now stop bloody complaining all of the time so I can get back to blissfully squinting at all the little cars driving around."

SimCity 2000 was a revelation to me. I'd played the original *SimCity*, but *SimCity 2000* swapped from the top-down view and 2D graphics to an isometric perspective, which made my little cities feel absolutely alive and real. There was so much detail packed into its pixels, giving every tiny house and park and skyscraper its own personality. In a few days I'd know my virtual city's neighbourhoods and roads better than the one I actually lived in. After building an airport, I could happily watch the teensy, tiny aeroplanes inching across the screen for hours. I always rushed to build seaports just so a little boat would appear in the waterways. It was like a live feed from a webcam pointed at a real metropolis, long before live webcams were even a thing. *SimCity 2000* was one of the first PC games to really sink its hooks into me, and I'd often eat dinner in front of the screen, not even playing but just observing.

And when I wasn't just staring at my city, there was so much to fiddle with. Taxes to increase when I ran into money troubles, underground views for laying down utility pipes and subway lines, and graphs showing various attributes of my city that... well, I probably never really understood all the graphs. But at least they were there if I wanted to look at them.

And there was just something so mesmerising about peering down at the little world I was building, seeing the cars on the roads I built obeying the little traffic lights, experimenting with city ordinances, watching the city slowly grow until it was so incredibly big I'd just about run out of room. And then I'd start a new one.

SMASH THE SYSTEM

It was also extremely rare at the time: a game that had a beginning but no real ending, with no genuine win-state, or even a way to let you know if you should give up and start over or keep working on the city you had before you. It was open-ended, and you could build and manage your city indefinitely. Once I even left my game running overnight while I slept, just to see if it could sustain itself. I'm pretty sure it was in bad shape the next morning.

There was also the satisfaction that comes along with building something beautiful – knocking it down so I

LEFT: I wouldn't have a water shortage if you people would drink seawater.

RIGHT: I hate to raise taxes for the 75th time in a row. But I'm gonna.

THERE WAS JUST SOMETHING SO MESMERISING ABOUT PEERING DOWN AT THE LITTLE WORLD I WAS BUILDING

could try to rebuild it again. Disasters could occur, with anything from earthquakes to plane crashes to alien attacks, but I could launch them myself, too, if I wanted a little extra challenge or if my city was humming along so nicely I'd just gotten a bit bored. That's the danger of including a disaster menu at the top of the screen. It's impossible not to click on it once in a while. Boom. There's a flood or tornado or a nuclear accident. Hmm, maybe city builder games do make me feel like some sort of god after all, and not a very nice one at that. ■

SIM-OFFS SimCity 2000's *many spin-offs*

SIMCOPTER

Players could import *SimCity 2000* cities into the game and fly around in them – and it was the first time gibberish language Simlish was used.

STREETS OF SIMCITY

Similar to *SimCopter*, but for cars: you could drive around in your *SimCity 2000* cities. You could also, weirdly, have car-based deathmatches with friends.

SIMHEALTH

A game simulating then-President Bill Clinton's healthcare reform policies. Ironically, perhaps, it was DOA, because who wants to simulate that?

LEFT 4 DEAD

BROUGHT 2 LIFE

How LEFT 4 DEAD cured a toxic LAN environment.

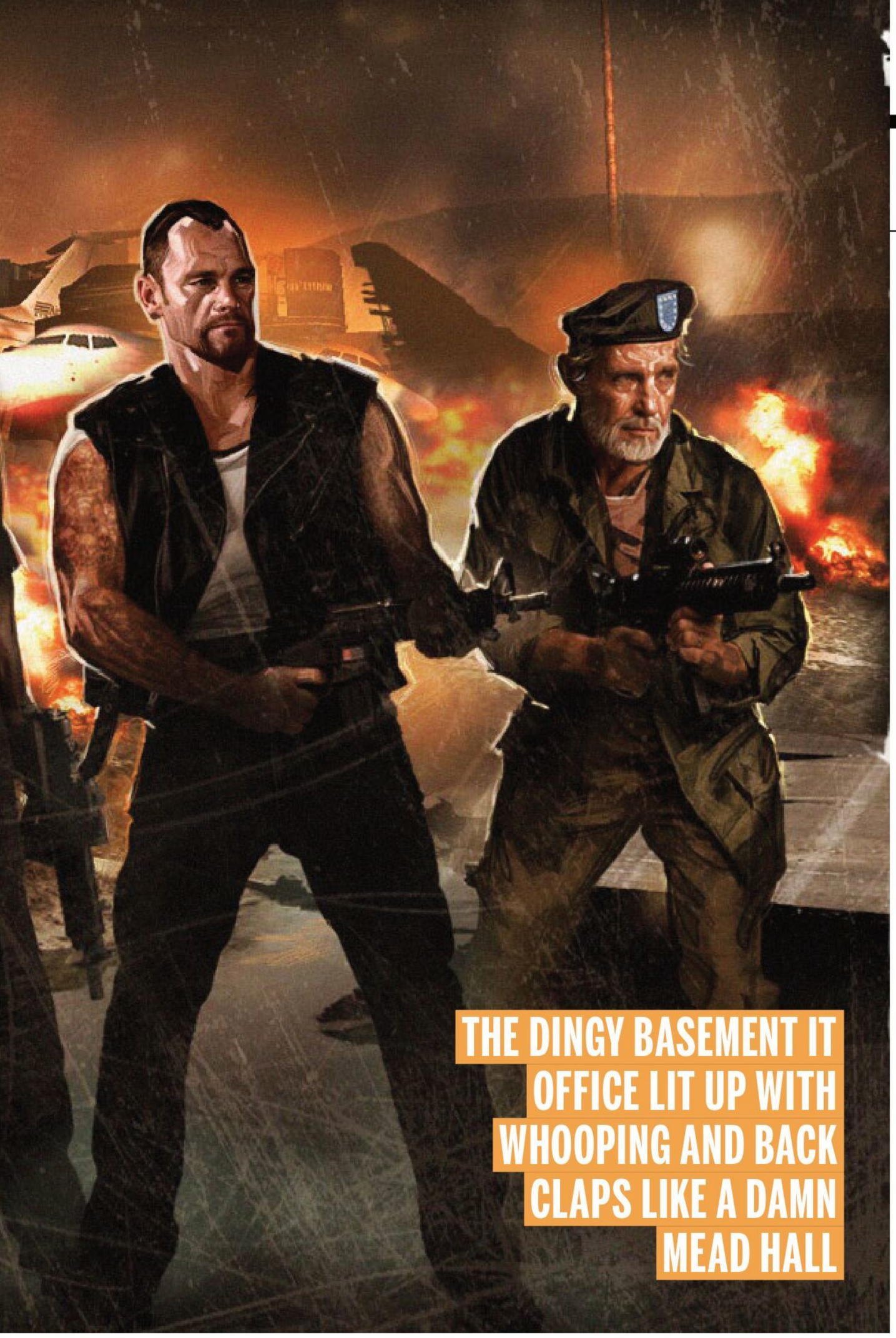
By James Davenport

Left 4 Dead represented a turning point in how I socialise through games. In 2008, LAN parties were still around and I had a good group I'd play games with at my old IT gig at the University of Montana. We'd take over the office after-hours and run through a list of custom *Warcraft III* games (a lot of the original *DotA* before I realised what a mistake I was making), some *Quake* and *Unreal*, *Counter-Strike* and the like. The common thread: all competitive. Worse, so was everyone in the room. Things got heated, and after a lifetime of football and wrestling coaches teaching me how to boil blood, I shut down the moment someone took a game too seriously. I still do.

Left 4 Dead changed the mood completely. We went in on a few of those early four-packs and spread them around. No one was particularly excited about *Left 4 Dead*, but it was a Valve game so we had to give it a go. We didn't play anything else for the whole semester.

We started inviting more people to game nights because working together to survive a zombie apocalypse was a far more appealing activity than getting wiped by Mike in every game ever. Enough people of varying skill levels would show up to get a few groups going, each dancing with the AI director at their own lovely rhythm, bouncing between despair and hope. The screaming in the office shifted from anger to a chorus of yelping barely discernible as calls for help and ensuing thank-yous. Rather than end each session deflated, saying nothing and shambling off to our dorms, we'd stick around or walk somewhere together, maybe get food, breaking down a dramatic standoff at Dead Air's refuelling finale, or how

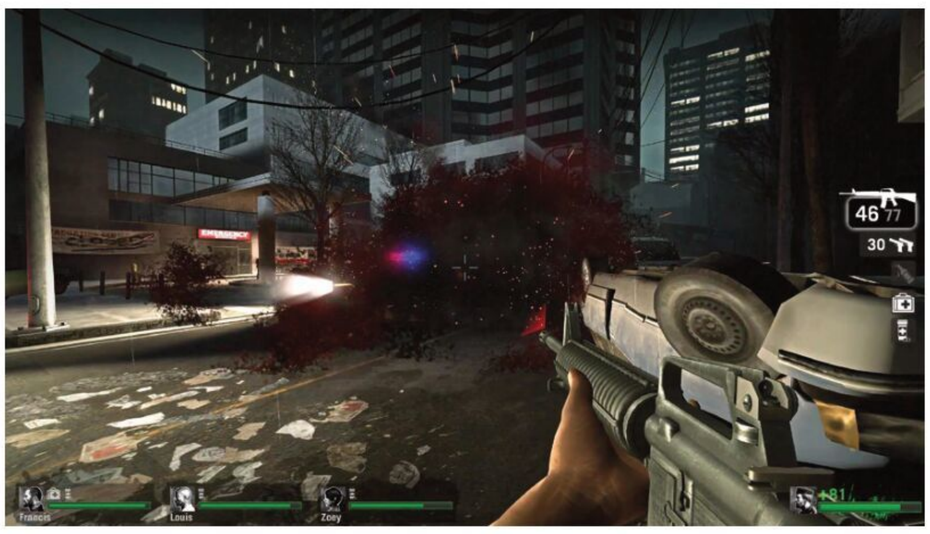
LEFT: All these zombies could use a hug and some words of affirmation.



THE DINGY BASEMENT IT OFFICE LIT UP WITH WHOOPING AND BACK CLAPS LIKE A DAMN MEAD HALL

BELOW: Not what you wanna see when you're on your lonesome.

BOTTOM: A collective 'ooooh' from the room with every pipe bomb.



LORE 4 READ

Some of the best comics based on Valve's excellent games

L4D
The Sacrifice, a story that ties *L4D* and its sequel together.
l4d.com/comic

TEAM FORTRESS 2
Read the catch-up then check out Ring of Fired.
teamfortress.com/comics

PORTAL
Lab Rat tells the story of a man living in the walls of Aperture Science.
thinkwithportals.com/comic

everything nearly went to shit in Blood Harvest's cornfield sprint.

After mastering the campaigns, we entertained the idea of trying out the versus mode and, yeah, that had me worried. See above. Yelling. Fragility. I tensed up at the thought, but *Left 4 Dead*'s versus mode never dipped back into that volatile competitive mood. Coordinating the perfect Smoker pull and Hunter pin combo to split up the survivors always carried more of a pranking-your-pals energy than any spectre-of-my-disappointed-dad vibes. Versus was cunning and playful, hewing closer to hide-and-seek than the pure reflex-driven play of most competitive shooters. We stayed jubilant and friendly. The dingy basement IT office lit up with whooping and back claps like a damn mead hall. God I miss it.

LAN 4 DEAD

It's odd, seeing the LAN culture fade so quickly after one of the best LAN games I'd ever played was released. Forces beyond our little IT office's control, I suppose. But it's OK. Sometimes we'll manage to get a fragment of the group together for some modded nightmare run of a custom *L4D2* level, Teletubby hordes chasing us through Mario's palace or something else normal like that. And with *Back 4 Blood* on the horizon, old text threads are creaking back into motion. I wonder if we'd be so adamant about keeping in touch if we kept playing *Quake* and *DotA*, pissing the bed with every bad game. Would I even lament the slow death of LAN, or would it be a relief to me?

Left 4 Dead made finding positive social connections in games a guiding principle for me, something I take into consideration with every multiplayer experience. Some genre fiction paved an avenue for amazing friendships. How great is that? And, yeah, we'll never be in the same room together again, but that's OK. A lobby's a lobby. ■

THE GREATEST INFLUENCER

PC gaming would look very different without CIVILIZATION. *By Fraser Brown*

I have no idea where we'd be without *Sid Meier's Civilization*. Its influence has been an overwhelming constant for decades, defining generations of strategy games and developers. If Sid Meier and Bruce Shelley hadn't decided to let Napoleon, Montezuma. and Alexander the Great duke it out, swallowing up the world and dropping nukes on each other, a huge chunk of gaming history would never have happened.

Turn-based strategy existed long before *Civ*, but it's *Civ*'s brand of turn-based strategy that became the model that most of the genre ended up following. It's not just 4X games that owe almost everything to *Civ*. You can't help but stumble across its DNA everywhere, whether you're playing *Crusader Kings*, *Total War*, or *Age of Empires*, which dreamed of being a real-time *Civ*.

It just kept setting the standard, over and over, with each new release. Wherever you are in the gaming timeline, there's a good *Civ* to play. Throughout almost my entire life, *Civ*'s been there, beckoning me to take one more turn. And it's always recognisable. You always know what you're getting with *Civ*. That doesn't mean it's immune to changes, and each team has left their own mark on the series, but it always maintains that comforting familiarity.

Meier's name is still in the title and he continues to oversee the series to this day, which is why it can be hard to separate the individual games from *Civ*'s long history. But it's not just Meier's legacy. Every single *Civ* has its own designer, and the team has changed over the years. Huge shifts have occurred due to their vision. And then each new designer builds on it, so that they're adding to this collaboration that's been going on for longer than a lot of its players have been alive.

TIME PORTAL

When you're playing *Civ VI*, you're also playing every *Civ* that came before it, and through all the changes that original design philosophy is still apparent. A focus on exploration and discovery has been with the series from the start, highlighting the achievements of humanity and not just the conflicts, and letting you win the game not just through conquest but by leaving Earth and travelling to the stars. It's ultimately an optimistic series, and that optimism proved to be infectious. Even *Total War*, a series all about huge armies colliding, lets you go down the diplomatic route, conquering the world by making massive alliances.

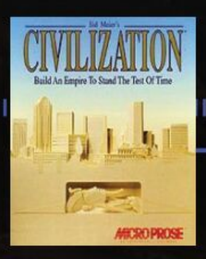
Civ might seem conservative 30 years on, but in 1991 it seemed wildly ambitious. Meier and Shelley's previous game was *Railroad Tycoon*, and the leap from managing a railroad company to being the immortal ruler of a global empire was pretty big. "We were young, and we had no fear," Meier told me in an interview a few years ago. It was an experiment. Things like using squares instead of hexes and making it turn-based instead of real-time weren't made right away, instead being born out of a desire to make this complex game more accessible.

Would I recommend the first game now? Maybe if you want a trip back through gaming's past. But you could instead play the much flashier *Civ VI*. Or, if you prefer squares over hexes, you can't go wrong with some *Civ IV*. And you'll still see what Meier, Shelley and Microprose were trying to create in 1991. Other developers are still trying to find their own *Civs*, like Mohawk Games' *Old World* and Amplitude's *Humankind*. At this point, the only way *Civ* will vanish is if actual human civilisation perishes. ■

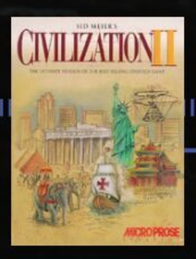
BELOW: Maps were a bit simpler back in 1991.

BOTTOM: Your majesty, please don't nuke us.

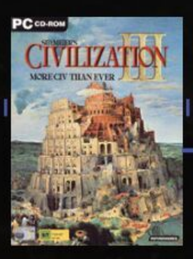
A BRIEF HISTORY OF CIVILIZATION *30 years of wonders and wars*



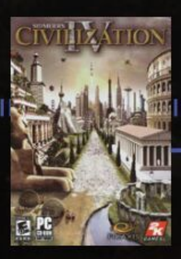
CIVILIZATION
1991
The one that started it all.



CIVILIZATION II
1996
The one with the animated emissaries.



CIVILIZATION III
2001
The cultured one.



CIVILIZATION IV
2005
Civilization: The Next Generation.

CIVILIZATION V
2010
The rebel that introduced hexes.

CIVILIZATION VI
2016
The one that made cities huge.

WHEN YOU'RE PLAYING CIV VI, YOU'RE ALSO PLAYING EVERY CIV THAT CAME BEFORE IT

ABOVE: Even in a fantasy world, TVs in the '90s were bulky.

LEFT: The ugly clothing patterns probably looked better on a CRT display (but not much).

RIGHT: The UFO prop got a lot of use in my productions.

HOLLYWOOD DREAMS

Pretending to be Pixar in **3D MOVIE MAKER**, Microsoft's weird 1995 animation studio for kids. ***By Tyler Wilde***

Today's PC gamers are constantly feeding YouTube and Twitch with game footage, but back in 1995, capturing our screens was hardly thought of. Though even then there existed seeds of 2000s machinima. One such seed was 3D Movie Maker, a program that empowered kids to spend afternoons animating car crashes and alien abductions. It's one of Microsoft's best bits of '90s software, recognising the potential for real-time 3D rendering as a creative tool. It's also bizarre.

There was an idea back in the '90s that modern software should map its functions onto the most obvious metaphors possible. In Microsoft Bob, for instance, programs were organised into the rooms of a house. PC Gamer's '90s demo discs similarly featured adventure game-style interfaces. These virtual spaces couldn't have boring old tutorials – Turing and Asimov promised artificial intelligence, not tooltips – so they were augmented with chatty characters such as a cartoon dog, our own Coconut Monkey, and the infamous Clippy from Microsoft Office. 3D Movie Maker had a guide, too, but since it was for kids and this was the '90s, he was a horrible blue guy with goat pupils that ran perpendicular to each other. He was a real nightmare, McZee.

McZee's antics – riding a shopping cart down roller coaster tracks, turning into a slice of cheesecake – illustrate why the '90s holds such a monopoly on the words 'wacky' and 'zany'. He guided users around a movie studio, finally leading to the interface where you could make your own movies with props and characters as garish as he was. The models were clearly influenced by American cartoons of the time, such as Rugrats and Rocko's Modern Life, and that was good enough for ten-year-old me. (A Nickelodeon-themed version of the software released in 1996.)

MOVIE MAGIC

If I knew nothing of 3D Movie Maker and you asked me to imagine what a 3D animation program for kids might have been like in 1995, I'd probably assume that it was a proto-*Garry's Mod* disaster with impossible controls. On the contrary, this was a brilliant piece of software. It simplified 3D animation such that kids could create surprisingly sophisticated scenes and even their own audio if they had a microphone.

To animate a character walking, you would add the character to the scene, select the walking action, and then click and drag them along the floor to record a path. You could then scrub back to the start of the scene and do the same to another character or prop, layering the movie with animations. It was in 3D Movie Maker that I first got a sense of what a digital animation and video editing timeline was, which I'd carry into the embarrassingly bad games I made with Adobe Flash, the software used for so much vector animation in the late '90s and 2000s.

Once you made a video in 3D Movie Maker, there wasn't much to do with it other than show your family and friends. It was a toy, more or less, but also a peek at the future. At the time, we were still crudely editing home movies with dual-deck VCRs (MiniDV was a new format), but it was becoming clear that personal computers were one day going to put amateur creators – filmmakers, animators, musicians, game designers – on the same playing field as professionals. 3D Movie Maker wasn't a game itself, per se, but it was a vision of entertainment software as a creative tool, as opposed to a one-way fun pipe, and that is very PC gaming. ■

ONCE YOU MADE A VIDEO IN 3D MOVIE MAKER, THERE WASN'T MUCH TO DO WITH IT OTHER THAN SHOW YOUR FAMILY AND FRIENDS

BREAKOUT ROLES

3D Movie Maker featured some big debuts

G-MAN
McZee's voice actor, Michael Shapiro, went on to play Gordon Freeman's employer in *Half-Life*.

COMIC SANS
Comic Sans debuted in 3D Movie Maker. It was actually designed for Microsoft Bob, but wasn't ready in time.

BONGO
Bongo is 3D Movie Maker's most recognisable actor, having appeared in the demo version.

CONQUESTS OF CAMELOT

CROWN JEWEL

CONQUESTS OF CAMELOT proved Sierra adventure games could grow beyond goofy parody. ***By Wes Fenlon***

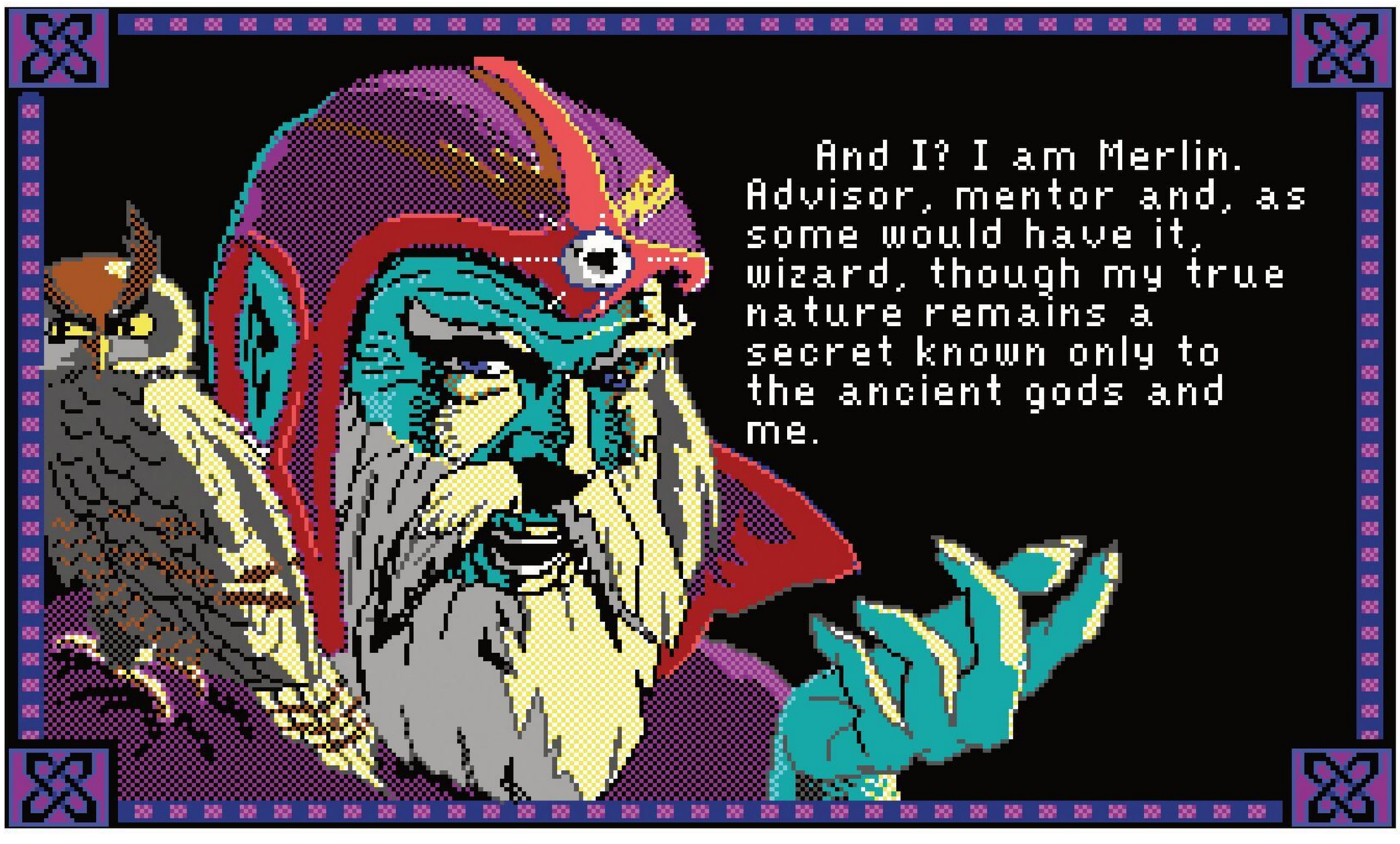
Conquests of Camelot **introduced me to the merciless difficulty of old Sierra point-and-click adventures just a few minutes in. As King Arthur, I filled my purse with coin in preparation for a long journey to find the Holy Grail, picked up a magical lodestone from Merlin to guide me, and gave Guinevere a kiss before heading out the gates of Camelot – or trying to. The castle gate fell onto my head as I rode under it, crushing me to death.**

"It is terribly unwise to start a sacred mission without the blessings of the gods," *Conquests of Camelot* admonished. Later I'd be gored by a wild boar, skewered on the lance of the Black Knight, and fall through thin ice, freezing to death. As in most of Sierra's adventure games, surviving to see the end of *Conquests of Camelot* was a real challenge. Its puzzles were beyond my ten-year-old brain, but I didn't care – getting to *be* King Arthur made *Conquests of Camelot* as mystical an object to me as the Grail itself.

A BUSY LIFE IN CAMELOT

By the late '80s Sierra had expanded beyond *King's Quest* and *Space Quest* to other adventure series like *Leisure Suit Larry* and *Police Quest*, but this game felt like a step towards maturity. Sierra hired Christy Marx, head writer of the cartoon Jem and the Holograms, who had no experience designing games but a long list of cartoons and comics behind her. Undaunted by that inexperience, Marx threw herself into research and wrote a game that even today feels unusually rich and devoted to its source material.

As a kid this seemed like the definitive Arthur story to me, an



LEFT: Is this the most badass Merlin has ever looked?

TOP: Wonder how Lancelot got into this predicament...

CONQUESTS OF THE LONGBOW

A year after *Camelot*, Christy Marx wrote and directed a follow-up adventure about Robin Hood and his merry men. *Longbow* was widely praised as an even better game. It smoothed over some of *Camelot*'s flaws, like its action scenes, trading them for less-clunky archery. Most notable, though, was the new art direction. *Camelot* was criticised in 1990 for looking dated compared to other contemporary adventures. *Longbow*, released just a year later in 1991, is both more detailed and more expressionist. Other than the low resolution, the art still looks great today.

adventure to get lost in once I'd worn out my tape of Disney's The Sword in the Stone. I didn't read The Once and Future King until years later, so *Conquests of Camelot* was my main introduction to knights Gawain and Lancelot and the legend of the Grail. Marx's writing has a classical flavour to it, more approachable than TH White's novel but still steeped in a bit of Ye Olde English. It's not tedious like *Police Quest* or as silly as most of Sierra's other adventures but still has a wry streak, like the text parser asking "Your bidding, M'Lord".

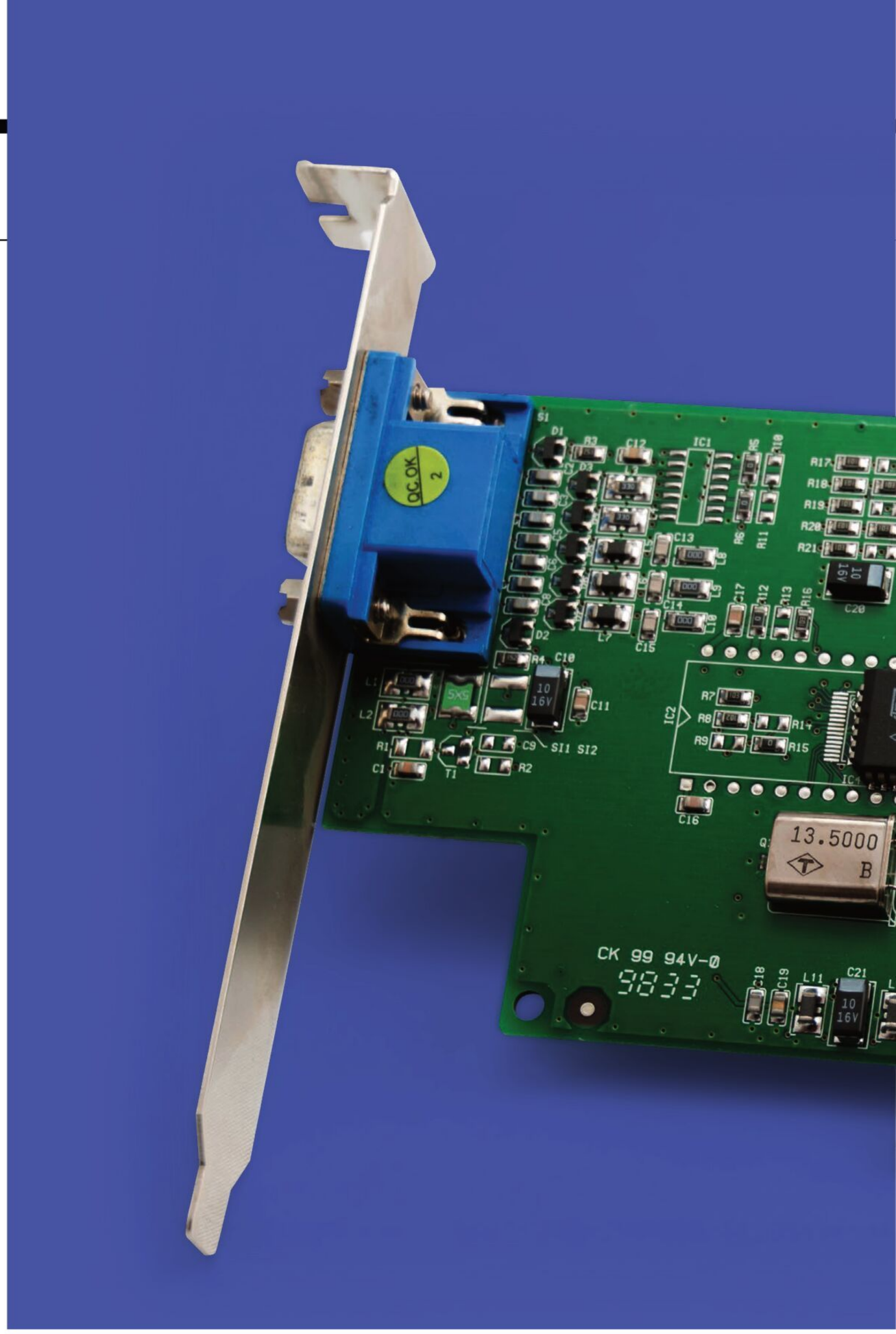
Conquests of Camelot ambitiously tried to capture everything that would go into a classic Arthurian quest, including a jousting contest, a sword fight against a mighty Saracen, and magic riddles. The action scenes were as clunky and frustrating as you'd expect from an adventure game in 1990, but I didn't know any better at the time – and neither did Sierra, really, which had only released one game in the *Quest for Glory* series at that point.

Thirty years later *Conquests of Camelot* may look rudimentary, and it sadly never got a VGA upgrade like many of Sierra's other early adventures. But it was one of my most formative PC gaming experiences, and not just because it taught me to save constantly. My dad and I played it together, and for me it ignited a passion for games with storytelling and puzzles before I understood adventure games were a defined genre. Years later, when he upgraded the family PC to a Pentium, I got an IBM 486 of my very own and spent hours playing LucasArts adventures like *Sam & Max* and *Indiana Jones & the Fate of Atlantis*.

Camelot also taught me that people went onto the internet and wrote FAQs with the answers to puzzles I could never solve myself. I printed out a guide and followed it to lead Arthur through Jerusalem and, at long last, claim the Holy Grail. The lesson about prayer didn't stick, though. I'm still a heathen – I just know not to trust castle gates. ■

PIXEL PUSHERS PAST

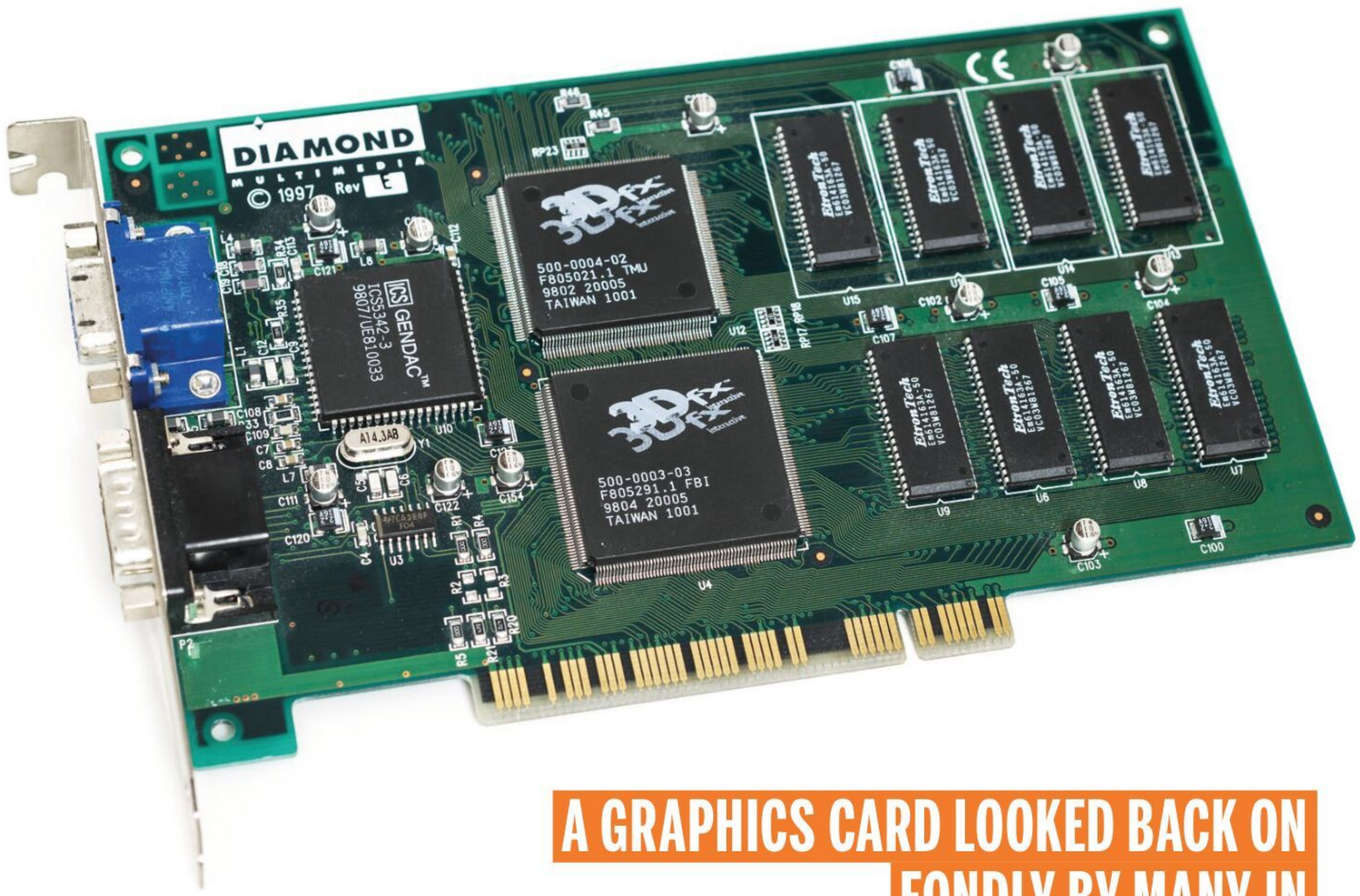
The graphics cards that helped define PC gaming. *By Jacob Ridley*



It's easy to forget about where we came from in PC gaming, especially when we're arguing over gigabytes of memory and teraflops of performance. But there's actually a lot that we can glean from the annals of GPU history – the colossal leaps in power that GPUs have taken in under 25 years goes some way to explaining why today's top graphics card costs $1,499.

You have to walk before you can run, and there were many attempts to nail an image resolution of just 800x600 before anyone could dream up the pixel count required for the latest games at 4K. Yet you'd also be surprised by just how many features so prevalent in modern GPUs were first introduced back at the dawn of the industry. But let's start right at the beginning – when active cooling was optional and there were chips aplenty.

3dfx Voodoo

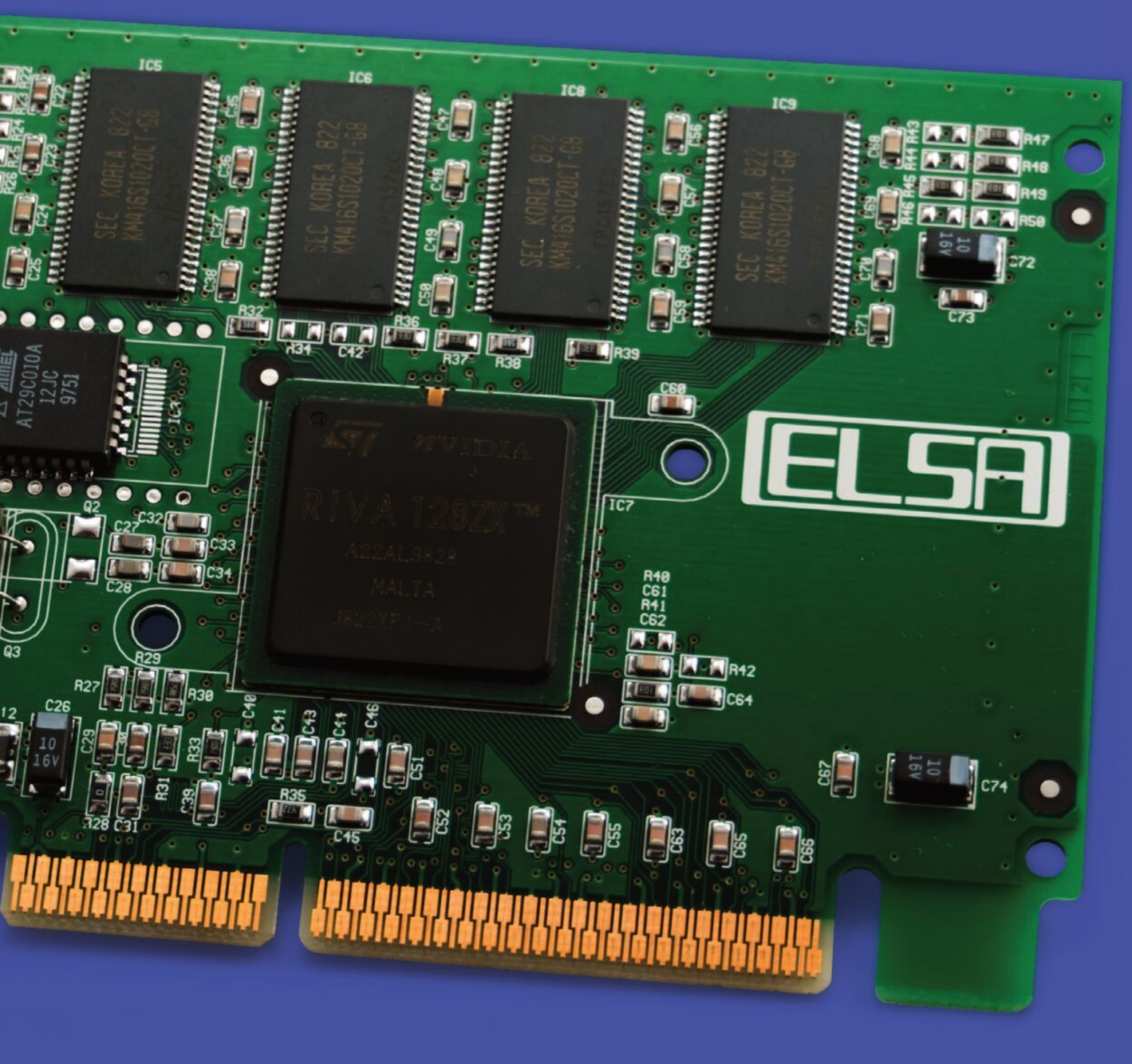


1 It's March, 1996 – England is knocked out of the Cricket World Cup by Sri Lanka, a young boy celebrates his fourth birthday (that's me), and 3dfx releases the first of what would be a couple of game-changing graphics cards: the Voodoo. It's a graphics card looked back on fondly by many in the PC Gamer office. Clocked at just 50MHz and fitted with a whopping 4/6MB of total RAM, the Voodoo was clearly the superior card for 3D acceleration at the time. The top spec could handle an 800x600 resolution, but the lower spec was capable of only 640x480. Despite its 2D limitations, it would prove a highly successful venture, and set 3dfx on a trajectory into PC gaming fame.

Note: the 3dfx Voodoo is often referred to as the Voodoo1, although that name only caught on after the release of the Voodoo2.

A GRAPHICS CARD LOOKED BACK ON FONDLY BY MANY IN THE PC GAMER OFFICE

INFO YEAR: 1996 / **CLOCK SPEED:** 50MHZ / **MEMORY:** 4/6MB / **PROCESS NODE:** 500NM



Nvidia Riva 128

2 A chipset company by the name of Nvidia would soon offer competition to the 3dfx in the form of the Nvidia Riva 128, or NV3. The name stood for 'Real-time Interactive Video and Animation', and it integrated both 2D and 3D acceleration into a single chip. It was a surprisingly decent card following the Nvidia NV1, which had tried (and failed) to introduce quadratic texture mapping.

This 3D accelerator doubled the initial spec of the Voodoo1 at 100MHz core/memory clock, and came with a half-decent 4MB SGRAM. It was the first to really gain traction in the market for Nvidia, and if you take a look at its various layouts – memory surrounding a single central chip – you can almost make out the beginnings of a long line of GeForce cards, all of which follow suit.

But while it offered competition to 3dfx's Voodoo1, and higher resolutions, it wasn't free of its own bugbears – and neither would it be alone in the market for long before a 3dfx issued a response in the Voodoo2.

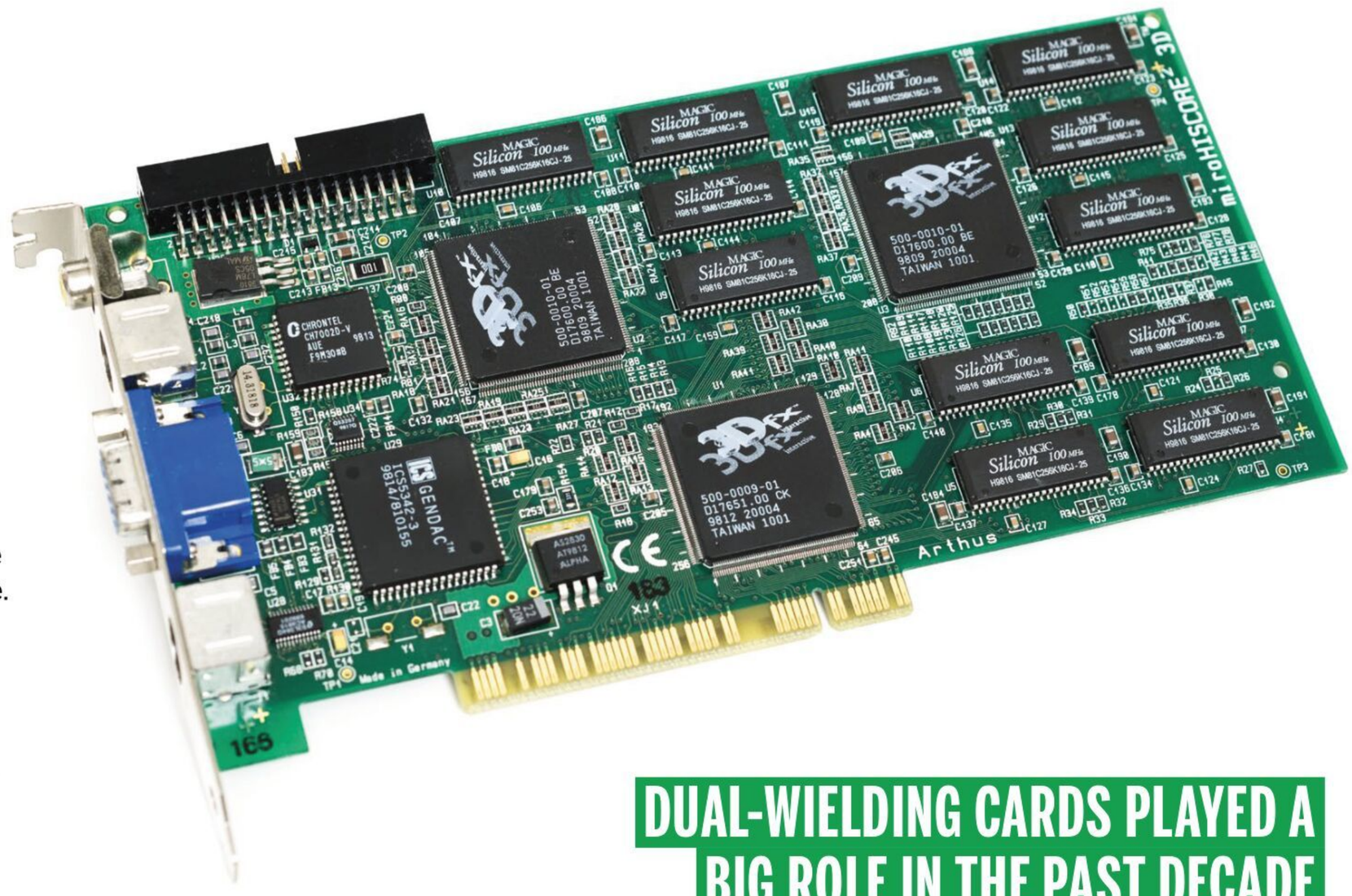
INFO YEAR: 1997 / **CLOCK SPEED:** 100MHZ / **MEMORY:** 4MB / **PROCESS NODE:** SGS 350NM

3dfx Voodoo2

3 Now this is a 3D accelerator that requires no introduction. Known far and wide for its superb performance at the time, the Voodoo2 is famed for its lasting impact on the GPU market, great frame rates, and continued use of a multi-chip design. A smorgasbord of chips, the Voodoo2 featured a 90MHz core/memory clock, 8/12MB of RAM, and – once connected via a port on twinned cards – the Voodoo2 could even support resolutions up to 1024x768.

Dual-wielding cards played a big role in the past decade of GPU performance. It was possible for a PC user to connect two cards together for better performance back in 1998 – and it was worth doing, too. 3dfx managed to stay on top with the Voodoo2 for some time, but it wasn't long until it would make a few poor decisions and be out of the graphics game entirely.

INFO YEAR: 1998 / **CORE CLOCK SPEED:** 90MHZ / **MEMORY:** 8/12MB / **PROCESS NODE:** 350NM



DUAL-WIELDING CARDS PLAYED A BIG ROLE IN THE PAST DECADE OF GPU PERFORMANCE

Image credits (1,2 & 3): Fritzchens Fritz

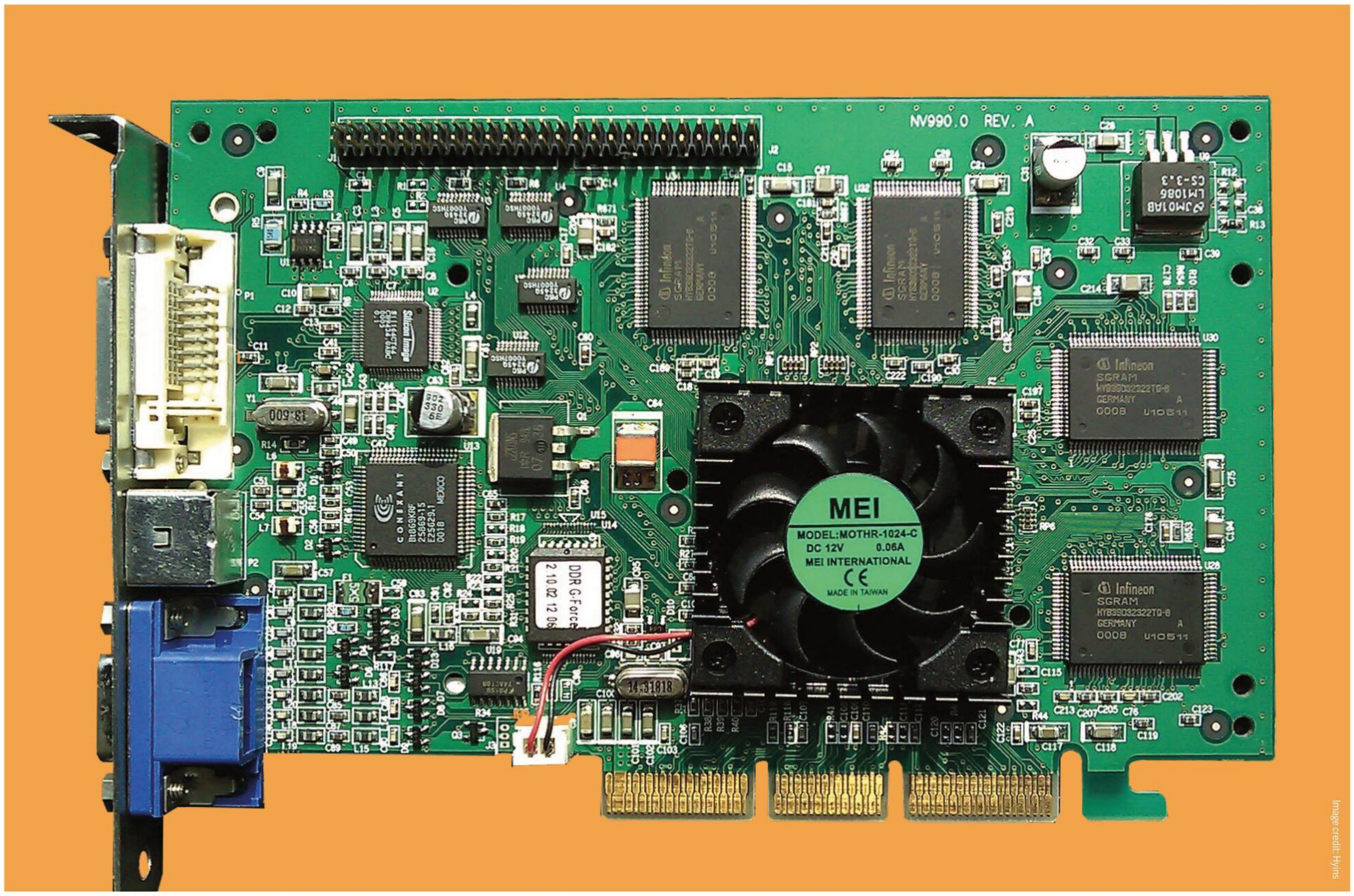


Image credit: Hyins

Nvidia GeForce 256

4 The first bearing the GeForce name still in use today, the GeForce 256 was also the 'world's first GPU'. "But what about the Voodoos and the Rivas?" I hear you ask. Clever marketing on Nvidia's part has the GeForce 256 stuck firmly in everyone's minds as the progenitor of modern graphics cards, but it was really just the name Nvidia gave its single-chip solution: a graphics processing unit, or GPU.

As you can probably tell, this sort of grandiose name, a near-parallel to the central processing unit (CPU) raking in cash since the '70s, was welcomed across the industry.

That's not to say the GeForce 256 wasn't a worthy namesake, either. Integrating acceleration for transform and lighting into the newly-minted GPU, alongside a 120MHz clock speed and 32MB of DDR memory (for the high-end variant). It also fully-supported Direct3D 7, which would allow it to enjoy a long lifetime powering some of the best classic PC games released at that time.

INFO YEAR: 1999 / **CORE CLOCK SPEED:** 120MHZ / **MEMORY:** 32MB DDR / **PROCESS NODE:** TSMC 220NM

Nvidia GeForce 8800 GTX

5 Once Nvidia rolled out the GeForce 8800 GTX, there was no looking back. Precursor to ultra-high-end, enthusiast graphics cards, such as the RTX 3090, if you want to talk about a card that really got peoples' attention it's the GeForce 8800 GTX. Launched back in 2006 to much fanfare, the 8800 GTX was the largest GPU ever built at the time. With 128 Tesla cores inside the G80 GPU, and 768MB of GDDR3 memory, the 8800 isn't an unfamiliar sight for a modern GPU shopper. It bears the marks of many a modern GPU – even if it might be a little underpowered by today's standards. Despite a pre-launch recall threatening to scupper the 8800 GTX launch plans, this graphics card ruled over the GPU market at launch and even stuck around for some time afterwards thanks to a unified shader model, which was introduced with the architecture alongside Direct3D 10.

INFO YEAR: 2006 / **CORE CLOCK SPEED:** 575MHZ / **MEMORY:** 768MB GDDR3 / **TRANSISTORS:** 681 MILLION / **PROCESS NODE:** TSMC 90NM

ATI Radeon HD 5970

6 And what's AMD been doing all this time? Semiconductor company ATI was busy building heaps of console chips right the way through the '90s and early '00s, and made some excellent GPUs in its own right, such as the X1900 XTX. It was later purchased by AMD in 2006. After the abortive HD 2000 and 3000 series, the HD 4870 and 4850 were quality cards, but the one that made the biggest splash after the move was the Radeon HD 5970. The HD 5970 was essentially a large Cypress GPU, 1,024MB pool of memory, and a sizeable 256-bit memory bus… multiplied by two.

This twin-GPU tradition continued right the way up to the AMD Radeon R9 295X2 and the Nvidia Titan Z. But once multi-GPU support started dwindling, solo cards became the predominant form factor. And with multi-GPU support in the developer's court due to the introduction of DirectX 12, they may never return.

SPECS YEAR: 2009 / **CORE CLOCK SPEED:** 725MHZ / **MEMORY:** 2,048MB GDDR5 / **TRANSISTORS:** 4,308 MILLION / **PROCESS NODE:** 40NM

THE ONE THAT MADE THE BIGGEST SPLASH AFTER THE MOVE WAS THE RADEON HD 5970

Dave's fave from the grave

NVIDIA 8800 GT

Dave James: I've gamed on more graphics cards than I can remember. My first Voodoo2 was transformative, the Riva TNT was ace, and I've since had twin Titans and dual-GPU Radeon cards in my home rigs, but none hold so dear a place in my heart as the 8800 GT. Forget the 8800 GTX, the GT combined stellar performance, great looks, and incredible value. I've still got my single-slot, jet-black reference card – the very same one photographed here and originally for PC Format issue 217 – and will never part with it.

EXTRA LIFE

CONTINUED ADVENTURES IN GAMING

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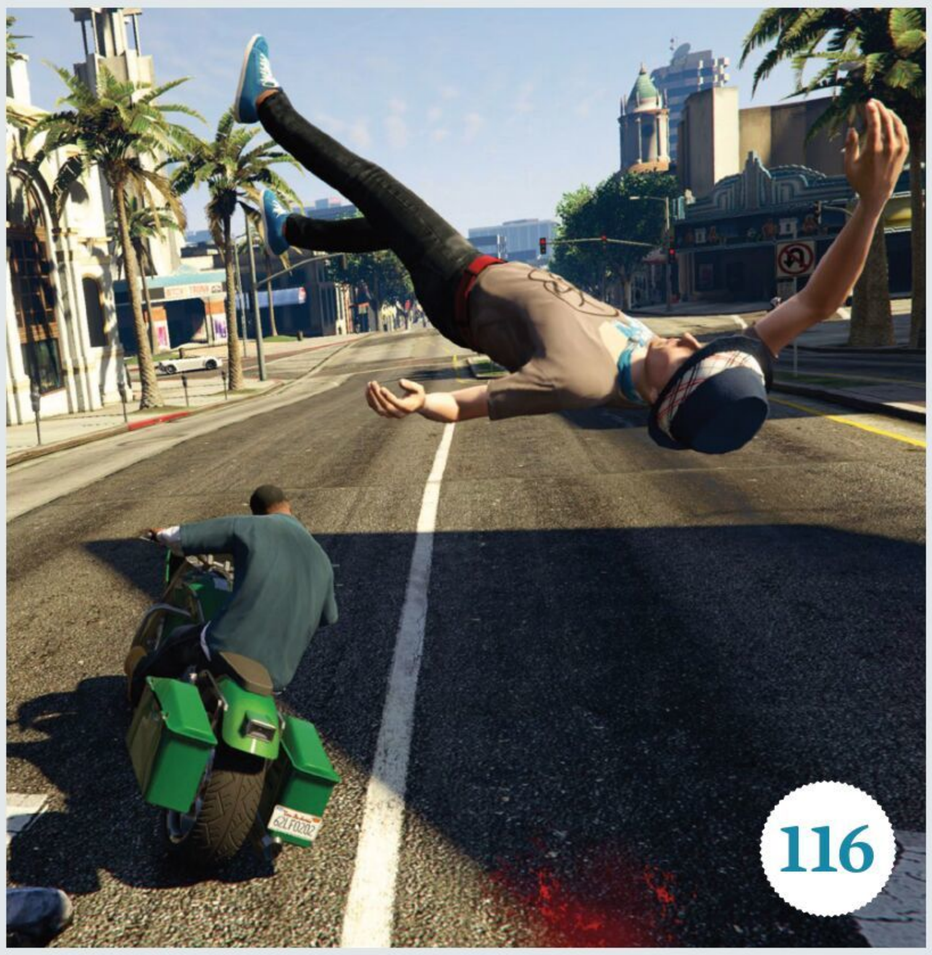
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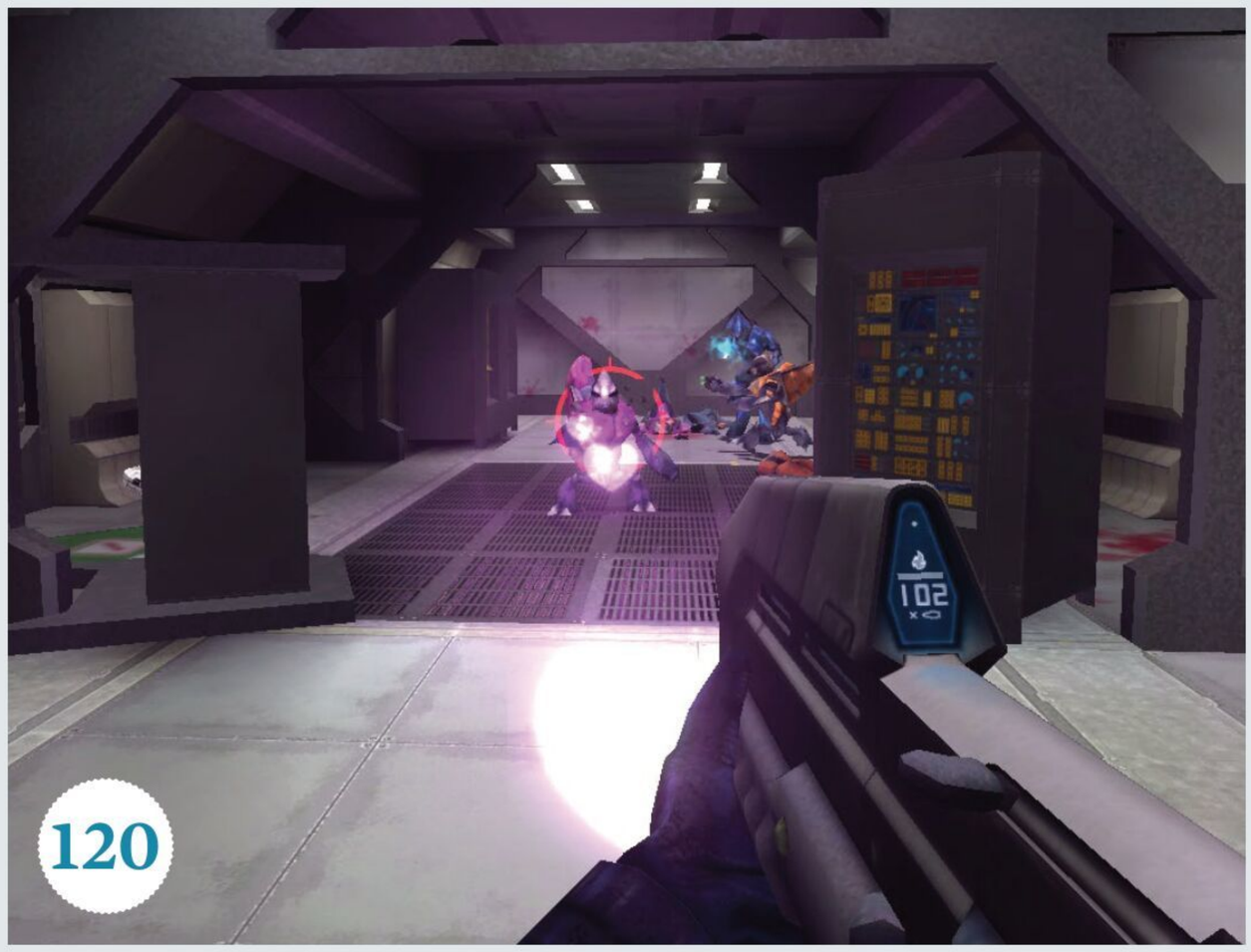
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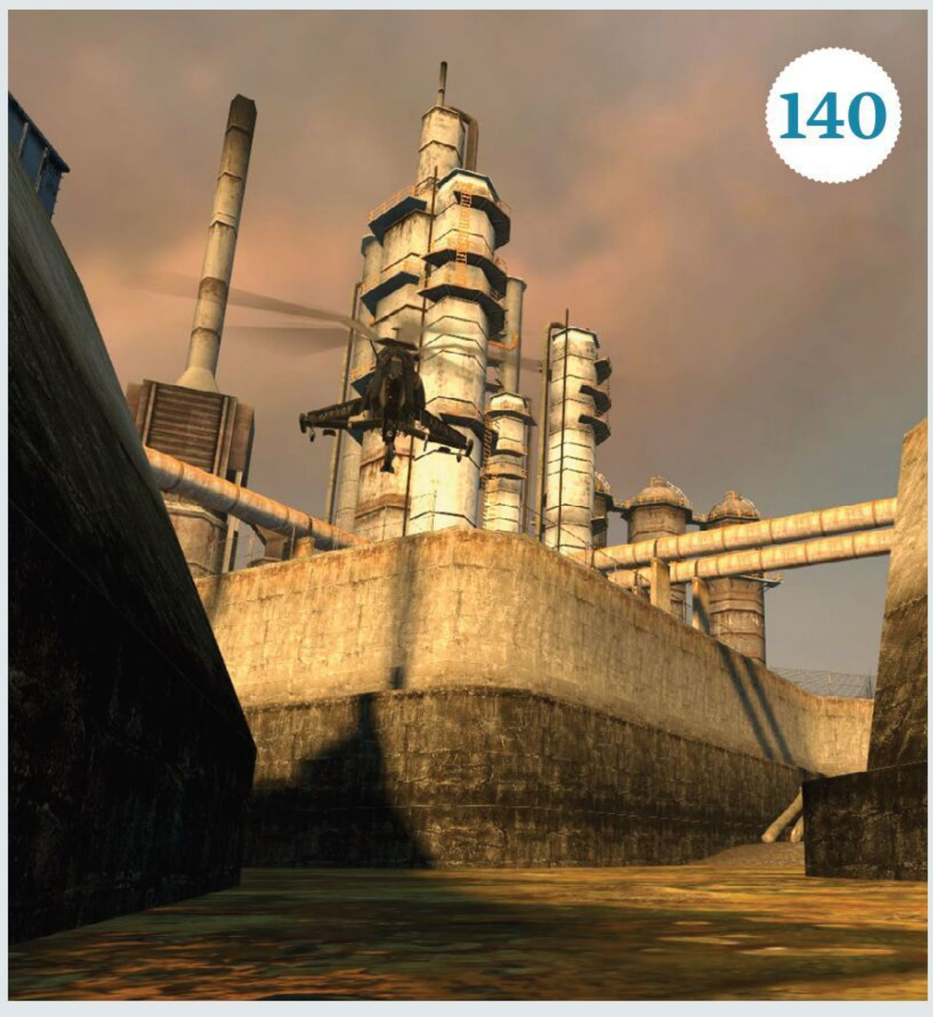
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DIARY

TRYING TO BE JUST AND PIOUS IN

CRUSADER KINGS III

PART I

Forget you sheeple, I'm going to be the good guy. *By Luke Kemp*

THE RULES

1 Strive to be noble and just in all decisions.

2 Treat everybody I come across with civility and respect.

3 Punish any and all un-chivalric behaviour with appropriate zeal.

Yes, yes, I know, I know. *Crusader Kings III* is a game that practically *begs* you to be cruel, self-serving and just generally evil. But I'm going to lean hard into the alternate history angle, and try to avoid falling over. What if, unlike the real medieval leaders, I really *was* a king that had everybody else's best interests at heart? Was all that aggression and backstabbing really necessary in the grand scheme of things? Can't we all just get along?

I decide to jump into the Anglo-Saxon shoes of King Harold II. Taking stock of my situation, I realise that I haven't exactly made things easy for myself. I'm already at war with both King Harald IV, and Duke William II 'the Bastard'. In terms of family, my parents had eight children including me, because Netflix hasn't been invented yet. My brother Tostig hates me so much that he's my nemesis. He's clearly far beyond my powers of persuasion, which makes me very sad.

My mother, I'm shocked to find, has a slightly negative opinion of me. I don't have this problem with my dad although this is, admittedly, because he's dead. What to do? I turn to the church's teachings, something that I'll be doing a lot of in my mission to be pious and just. It's right there in the ten commandments, innit? Honour thy father and thy mother. So I honour her with some cash, and thankfully, she's shallow enough for this to make her (very slightly) love me again.

I'm under attack from powerful armies, I'm living in a world of greedy, violent monarchs, and I want to be sure that I always make noble decisions. I need God on my side. Therefore, I go for a Learning lifestyle, and start building up the Theology tree straight away. Next, I check out my relationship with the pope, Robin to God's Batman. He has a very slightly negative opinion of me.

I HOPE MY PLAN TO GET GOD FIGHTING IN MY CORNER WORKS OUT

That won't do at all! I start a scheme to sway him, hoping to help him appreciate my many lovely qualities.

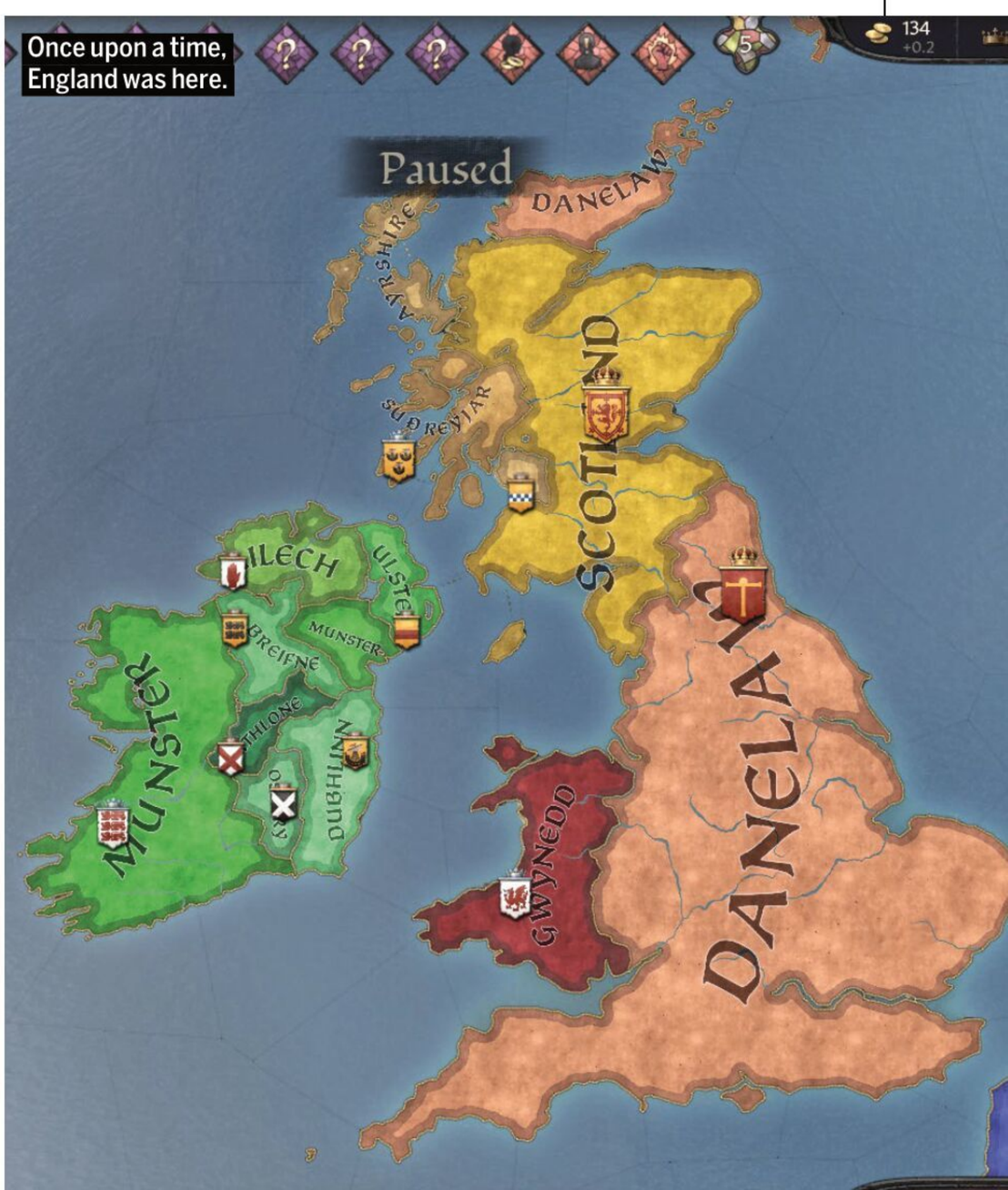
GOD MORNING BRITAIN

I hope my plan to get God fighting in my corner works out, because things start to go downhill. You know, even more than they already were. I discover that half my council hates me, and four enemy allies jump into the war in quick succession. Worse than all of that – much, much worse – I discover that I am cheating on my wife. I have become that which I hate the most, an unchivalrous cad! The first I hear of my unfaithfulness is when one of my vassals tries to blackmail me over it.

I decide to make the best of a bad situation, refuse the blackmail, and come clean. I'll be best mates with the pope soon anyway, loads of forgiveness points in the bank for that. Therefore, my affair is exposed, my wife's opinion of me plummets an understandable amount, and my devotion level drops because I gain the trait 'adulterer'. Wait, I didn't already have that? It's only adultery if you get caught? I guess this is an educational game after all. I do manage to scrape together the shards of my reputation by immediately leaving my lover for my wife, who seems to forgive me instantly. I love that woman.

More bad news, as I am informed that my primary heir is not of my dynasty. Before I can try to make sense of this, Aeldgyth (I congratulate myself on finally remembering the name of my wife) announces that she is pregnant. I guess she really did forgive me. Nine months or so later, our son Eustace pops out. We add him to the pile of children, now numbering six.

There's little time for celebration though, as the invading armies – vastly superior to my own – are making huge gains. But wait! The pope is finally swayed, and now has a healthily positive opinion of me. Huzzah! Now I can



A BRIEF HISTORY OF KINDNESS *The most momentous events so far*

1066 King Harold II pays his mother to love him.

1067 King Harold II learns he is an adulterer.

1069 King Harold II loses his entire kingdom.

1072 Jarl Isleifur's first child with his new wife.

1074 Jarl Isleifur learns astral projection.

1075 Jarl Isleifur becomes very pious and very poor.

relax, as being in God's good graces will save me and my realm. I'm free to concentrate on making good decisions, looking after my subjects with love and care.

At least, I would have been, had I not been presented with a Game Over screen shortly afterwards. Perhaps God's not all he's cracked up to be. It's 1069, and although I don't die, I am landless due to the total annihilation of my armies, ruining me and my entire family. On one hand, King Harold II cheated death by my playing the good guy, as the real one died in 1066. On the other hand, I managed to run the entire kingdom of England into the ground in less than three years. This is why, in the real world, my wife bids a tearful goodbye to our children each and every time she is forced to leave them in my care.

KING HELL

Oh well. Second time lucky? While I'm initially distraught to find that I'm not allowed to play as the pope, I come to accept that this would break the game, as I'd literally be playing in God mode. Instead, I look north – far north – and settle on medieval Iceland (i.e. the functionally, but accurately, named 'island'). Not currently at war, and too out of the way to be invaded unless I *really* annoy somebody. This will go much better... surely?

Temporarily swerving the beliefs of my Catholic faith (lucky I had all those banked pope points), I possess the body of 63-year-old Jarl Isleifur. His ready-baked traits mean he's a fellow Catholic and, while wrathful, is also diligent and just generally does his own thing. Seems like a good starting point to me.

Time to take stock again. The pope has an even more negative view of me now than when I first played as Harold II, so I start a new sway scheme. I continue trying to woo God by sending a gift to my bishop, who promptly endorses me as a result. Great!

Given my advanced (certainly for the time) age, I need to ensure my legacy is preserved, so I swiftly marry off my only child Teitur to my spymaster, Rögnhildr. Unmarried myself, I decide that I want to live out my final days with a companion, so I marry the lowborn – but good natured – Caisséne. I do not collect gold from my subjects for the wedding, diving straight into the 'be a lovely chap' vibe.

My wife becomes pregnant almost immediately, and then, a traveller named Yosi arrives. I ask him to join my court on condition that he accepts our lord God into his heart. He gladly accepts. I've barely begun, but I've already brought my son and I into wedded bliss (with other people), I've had a chance to publicly demonstrate how nice I am, I've got a baby on the way, *and* I've made a new friend. It's much better here than in England!

JARL BE MINE

We hold a wrestling tournament, and I find my mate Yosi there bored out of his mind. Working on the assumption that "spend some time with Yosi under the pavilion" isn't a euphemism for impure activities, I select this option to have a chat with him, because I want to be a good friend. I want to be a good man generally, of course, so when the game informs me that I'm able to ask the pope for gold, I choose not to do so. I'm not going to bother the best friend of The Man Upstairs for money.

In October 1070, my son is born. I name him Isleifur, after me, as a living reminder to my wife not to remarry after my death. I then receive my first piece of bad news: my bishop has died of old age. This is terrible! I sent him that money for nothing! His replacement refuses to endorse me, but I'm not bashing my bishop with money again, just in case. The pope is not yet swayed, so I continue this scheme rather than trying to befriend my bishop. Papal approval didn't help me in my previous life, but perhaps that was just because I received it too late.

Bandits are now running rampant in my realm thanks to the crappy skills of my marshal, who I promptly fire and replace with my pal Yosi. Make me proud, good buddy! Speaking of friends, I have an opportunity to advance my scheme on the pope when a commoner of Italian descent is accosted for some minor offence. I agonise for a while over this. Bad deeds must be punished, but then, I could do with getting the pope onside sooner rather than later. I'm now 65 years old, and I don't look a day over 80. I decide to speak out in favour of the commoner to try and gain favour with the pope's friend King-Bishop Alexander. On balance, I can bring much more good into the world if I'm still alive.

Another child is born to me, which comes as a surprise, as I wasn't aware that my wife was pregnant again. A daughter this time, who I dub Patricia. A good Catholic name, just in case – you never know what might earn you more pope points.

TOXIC CRUSADERS

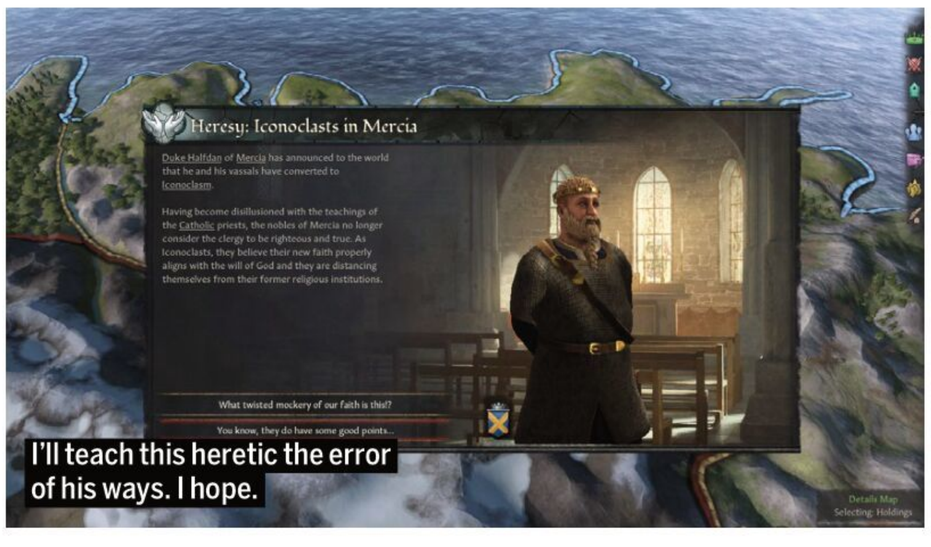
Suddenly, awful news! I receive word that Duke Halfdan of Mercia and his vassals have abandoned Catholicism for Iconoclasm. Naturally, I resist the temptation of this heresy, and consider how best to address it. The most sensible thing seems to be to begin an eight-year plot to abduct Halfdan, so that I can teach him the error of his ways and save his soul. So that's what I do.

The pope now likes me! Not much, but a win's a win. I find that my vassal Count Sigfus doesn't like me very much, though, so I start a new scheme to sway him too. I start to win him over, but not before I'm informed that I have bandits running throughout my realm once again. Oh Yosi, you silly medieval sausage! Can't you do anything right? I decide to find him a wife with high martial (and, hopefully, marital) skill, perhaps she can teach him a thing or two. I am, I would hope, invited to the wedding and made best man.

I HAVE BANDITS RUNNING THROUGHOUT MY REALM ONCE AGAIN

With my friend Yosi in loving hands, and my wife having a break from giving birth, I decide to go on a pilgrimage to Jerusalem. I hoped that this would make me more wise, just, pious and enlightened, but things start to get a bit weird. I visit Sigfus, and notice a few things I might be able to help him with in order to endear myself to him. Which is fine... but I'm simultaneously halfway around the world on my pilgrimage. Have I mastered the art of astral projection? This seems like kind of a frivolous use of my supernatural powers.

Nevertheless, desperate to be the wise, loving and loved ruler of island, I try my best to help Sigfus secure and tidy his place. However, like a Middle Ages Mr Bean, I just manage make things worse, and lower his opinion of me even further. I somehow return from my lengthy pilgrimage *after* this, presumably in God's good books but now deeply in debt. My quest to prove that nice guys don't have to finish last continues... ■



DIARY

TRYING TO BE JUST AND PIOUS IN CRUSADER KINGS III PART II

Nicety and piety are leading to calamity. *By Luke Kemp*

THE RULES

1 Strive to be noble and just in all decisions.

2 Treat everybody I come across with civility and respect.

3 Punish any and all un-chivalric behaviour with appropriate zeal.

Quick recap: I'm trying to ignore the urges this game inspires in me and everybody else, and be lovely, kind and noble at every possible opportunity; unless I catch anybody being in any way immoral, then they shall feel my pious wrath. After losing every square inch of the kingdom of England with a speed that I almost feel I should be proud of, I moved on to Jarl Isleifur of medieval Iceland. My jolly nature has won me a friend named Yosi... and bandits running rampant throughout my realm thanks to my lack of ruthlessness. After going on a pilgrimage hoping for a bit of deus ex machina, I am now returned, holier than a wagon full of Swiss cheese but in debt thanks to the costs of my travel.

The money situation is swiftly and easily dealt with when I reluctantly ask the pope for some gold. We're on very good terms, me and Alex, so he totally understands and retains a very positive view of me. It's not all good news, though, as Count Sigfus – a vassal I've been trying to win round for a few years now – still doesn't think much of me. Then I remember that he thought I was planning to nick his gold when I warned him it wasn't very well guarded, and I messed up his library when I tried to help him organise it. I was only trying to help! No good deed goes unpunished, etc.

THERE'S A 95% CHANCE OF FAILURE, BUT THE LORD GOD IS ON MY SIDE

But wait! The perfect opportunity to ingratiate myself to Sigfus arises when I loudly, if unsubtly, praise his forgiving nature at court. It works. Huzzah! I'll get everybody to recognise me as the kind and pious ruler that I am if it's the last thing I do. And, considering the fact that I'm now 70 years old and it's the 11th century, maybe it *will* be the last thing I do. I return home, chuffed that I've added Sigfus to my list of friends. My wife Caisséne further brightens my mood by announcing that she is pregnant! Again! That'll be child number three within a few short years. The more the merrier, I say. After all, the good book doth say go forth and multiply, and at this rate I'll be a multiplication pro.

Once the standard nine-month cooking time has passed, my daughter is born. I name her after Caisséne, so that she may serve as a living reminder to my wife not to remarry after my death. I took a similar approach with the naming of my other two children, and I'm really starting to run out of ideas.

THE ICONOCLAST

I've barely had time to think of my first excuse to avoid changing the nappies when I'm visited by my spies. Ah yes; several years ago, I started a scheme to abduct Duke Halfdan of Mercia because he converted to Iconoclasm, and I'm desperate to save his soul. The trap is ready to be sprung! There's a 95 percent chance of failure, but the lord God is on my side, so I order my agents to bring him to me.

My plot is exposed, and Halfdan remains a heretic. I'm having a particularly bad day, because I then receive word that my good friend Yosi – who I assigned to the position of marshal – has yet again let bandits run wild for another five years. Hmm, perhaps I should consider giving this position to somebody qualified instead of trying to keep my mate happy.

With impeccable timing, noted expert in marshalling, Gausberto (he just has one name, like Madonna), visits. I recruit him to my court, and swap him out for Yosi. I'm sorry, Yosi! I'll find you something else to do, my friend. But first, I must start a murder plot against Halfdan. This is fine to do because a) he's a heretic, and b) as I'm such a good Catholic in God's good graces now, I'll just pray for him and save his soul that way.

THE PLEBS *An average* Crusader Kings III *crowd*

1 Wise, pious, almost certainly cheating on his wife.

2 Kind, shy, generous, destined to be brutally murdered.

3 Selfish, greedy, quick to anger, destined to prosper.

4 Money. Cash. Moolah. Worshipped by people of all faiths.

That, at least, was the plan. On October 6 1078, Jarl Isleifur dies of old age at 72, and the murder plot dies with him. It seems that he was such a good Catholic, God simply couldn't wait any longer to meet him. I now play as his son Teitur, who has lurked in the background without doing very much (the lazy sod) but is keen to follow his father's example.

After (presumably) mourning the death of my father, I sit back and consider the land that I've inherited. Dad was a good man, but is prioritising courtesy, friendliness and piousness above all else really the best way to go? We lost no land during his reign, nor did we gain any. It was nice to see him make a friend in his twilight years, but putting that friend in the council to keep him close led to bandits running all over the place. Repeatedly. And now, I find that Yosi has a low opinion of me! It was probably my fault for doubting my father. I promise myself I will continue to walk in his well-meaning footsteps.

Yosi meant a lot to my dad, so I put him back on the council as steward. I don't want to undo all that hard work to get Sigfus on-side, either, so I make him chancellor. He's greedy, but calm and honest, which is a good combination for the position, maybe...?

DAGNABBIT

My son Dag is only six years old, but he's already a gambler, so I officially make him my ward in order to bring him up right. I'll make dad proud. Significantly, underage gambling isn't the biggest family revelation, though. I learn (remember?) that I have no mother. I don't mean that she's dead; I mean that, according to the family tree, *I have no mother*. It all comes back to me now, that day I tried to have The Talk with my father. "Dad, where do babies come from?", I asked. "I don't know," he replied, before bursting into tears. I think my step-mother Caisséne must have taught him eventually though.

To my dismay, I find that Caisséne has a very low opinion of me. Come on, Caiss! You know dad would want us to get along! I give her a job as spymaster, and start a scheme to sway her. Fortunately, this doesn't take long to work, and I like to think that she lets me call her 'mother'. I imagine dad looking down on us and smiling, as he shares another flagon of mead with his best mate God. I am in fact constantly aware of dear old dad looking down on everything that I do, and vow to impress him from here on out.

I'm minding my own business, praying in between saying kind words to people that pass by, when little Dag comes up to have a word. He's heard of a thief that's been sentenced to death, and doubts that God would approve. Naturally, I set him right, and inform him that God would very much approve. Thou shalt not steal, my boy, it's right there in The Ten Commandments! And if you think God wouldn't approve of the death sentence, you wait until I teach you about what he did to Job just to win a bet with Satan.

Uneventful weeks pass by, with the people poor but content, and me complimenting people on their shoes and whatnot, when suddenly, alas! A peasant rabble gathers, and I receive word that they are targeting me. I give Yosi some side-eye – all those years of bandits running amok can't have helped – but I keep my counsel on the matter. See, dad? I am temperate and respectful of your friend.

In the midst of my preparations for a potential civil war, there is scandal at the court. Sigfus has been caught cheating on his wife! Cad! Villain! *Unchivalrous rogue!* This will not stand. I immediately place him under arrest. That'll teach him for putting his soldier in another woman's regiment. I look up at the sky, and give my dad a hearty thumbs up.

I've only just finished patting myself on my chivalrous back when things take a rather unexpected turn. You would think, perhaps, that Sigfus' wife would call me many unkind names for placing her husband under arrest. Instead, she takes the first available opportunity to flirt heavily with me, making it clear that she wishes me to... ah... enter her court. Shameless strumpet! I would never cheat on my wife, least of all with the unprincipled likes of her!

I make sure to shame her as publicly as possible. I don't imprison her, as this reaction to her husband's arrest suggests that she has a thing for handcuffs, and I don't want to give her the satisfaction. I see a long line of middle-aged men asking for this woman of loose morals' name and address so that they can be sure to avoid her.

Then, as if I didn't have enough to deal with, Yosi challenges my authority in front of the court. I'm sorry dad, but I've put up with enough from this guy! I shout him down, which is stressful, but I don't get any more trouble from him. I feel guilty for treating him unkindly, but did not Jesus Christ himself show anger against the money changers? And anyway, he started it.

RABBLE, RABBLE

The peasant rabble are still unhappy, and deliver an ultimatum: the oiks aren't happy about taxes. I'm in a bad mood thanks to Yosi, so quickly refuse their demands. As a result, I almost immediately die in a siege. A sudden and undignified death for a man who was just trying to make the world a better place.

So now I'm Dag, and my world is a dark place. At just 13, I shouldn't have much more to worry about than my bed hovering a few feet above the floor thanks to all the issues of Uncannily Fair Maidens Weekly shoved underneath it. Instead, I'm in charge of a land under siege.

I REFUSE THEIR DEMANDS AND ALMOST IMMEDIATELY DIE IN A SIEGE

It's not long before my mum, nanny Caisséne, and one of my brothers are all killed. So I do the only reasonable thing and retreat to a corner to weep in peace.

When the peasants directly threaten me, I cave in to their demands – I saw how not doing so worked out for dad – and, thankfully, they disband. My land stagnates somewhat through following the family tradition of unambitious chivalry until, at the age of 18, I die at the paws and jaw of a wolf. Although my spymaster was with me at the time, and could have dealt with the situation better, she is but a lone woman. My medieval chivalry proved to be my undoing. It's probably for the best, to be honest, as I'd grown some facial hair that looked absolutely ridiculous.

So, what did I learn? Strict adherence to a moral code is great for making friends, and meting out righteous justice is fun; but it turns out you have to be a bit of a bastard sometimes if you want to... well... continue being alive. Heaven better be good after all I've been through. ■

DIARY

TRYING TO STAY ALIVE IN GTA V: CHAOS MOD

It's already pretty hectic out there – let's turn it up to eleven. ***By Rick Lane***

THE RULES

1 Every five minutes, a random event will occur.

2 Random events must be played through.

3 No reloading except upon death.

I wouldn't describe *Grand Theft Auto V* as a serious game, but it does take its silliness very seriously. Yes, it has absurd crime capers, ridiculous NPCs, and, of course, Trevor. But it's also strict about the rules of its world. If you want to fly, for example, first you must get on a plane, while its missions are rigid in terms of what they allow and don't allow the player to do. Go exactly here. Do exactly this. Under no circumstances stray from the objective.

I've often wondered what *GTA* would be like if it truly let its hair down, allowed its meticulously crafted simulation to run wild. Enter the *Chaos Mod*. Created by a modder known as pongo1231, this mod adds 250 random effects to the game that trigger at set intervals. Some of these effects are small, like adding a random weapon into your inventory. Others are... well, let's not spoil the surprise, eh?

My plan is simple. Take *GTA V*. Take the *Chaos Mod*. Then smash them together like a Ferrari crashing into a van full of clowns. I'm going to play the main campaign as you would normally, and see how many giant shoes and red noses fall out in the process.

First though, we've got to put the clowns in the van. Simple to install, the *Chaos Mod* lets you adjust the length and frequency of its random events. By default, a new event will trigger every 30 seconds. I don't want to blow all the game's randomness within the first couple of hours, so instead I set the event intervals to five minutes. As for event duration, the mod has two settings, both of which I set in ratio with the default settings. "Short events" are set to last five minutes, while "long events" will run for fifteen.

An event won't trigger until the first five minutes have passed, so *GTA V* kicks off as it always does, with aggressive style. Michael, Trevor, and Barry are robbing a bank in snowy Yankton, holding the staff hostage while they blast the vault door off with C4 explosive. They grab the loot, but the cops show up, culminating in a bloody shootout outside the bank. When the last cop falls, we make our way to the getaway car whereupon the event meter fills for the first time, and the game spawns a tugboat that lands on Michael's head.

Oh, this is going to be good.

WE'RE RACING BACK TO THE DEALERSHIP WHEN ANOTHER EVENT TRIGGERS

RANDOM HOUSE

Miraculously, Michael survives being flattened by several tons of barnacled steel, and the three men make their doomed getaway. Fast-forward nine years, and Michael, now in witness protection, brays at his therapist before story duties switch over to lovable small-time gangster Franklin, who's in the process of repossessing a couple of cars with his pal Lamar.

Vehicles acquired, we're racing back to the car dealership when another event triggers – Spawn Deadly Agent. At first nothing happens, and I wonder whether the mod is still working. But then several new 'speed holes' appear in the back of my car. I look around to see an Aston Martin DB5 hurtling toward me.

That's right. I'm being attacked by James Bond.

This is a problem. I imagine being attacked by James Bond is always a problem. But it's especially inconvenient for me as I don't have any weapons. My only choice is to floor it. Racing to the dealership, I seek sanctuary in the warm, reassuring embrace of a cutscene. I'm hoping that by the time the cutscene has ended, Bond will have gone off to wash his tuxedo or act inappropriately towards a woman, or whatever else 007 does in his spare time.

After a scene in which Michael's son Jimmy is accused of being a massive racist, I head outside to drive Franklin and Lamar home. The moment we do, however, Lamar crumples to the ground, and the mission fails. At first I think some new *Chaos Mod* effect, but after it happens a second time, I peek around the corner of the rear exit to see Bond waiting for us. Crafty git. It's almost like he does this for a living or something.

Now I'm in trouble. I can't get to the car without Bond shooting either Lamar or Franklin dead. So I do the only thing I can, which is run straight out of the door and punch the living daylights out of 007. He goes down disappointingly easily, but just to make sure I stomp on his head a few times. I don't expect you to talk. Not without your teeth.

Franklin and Lamar head home. Franklin is berated by his aunt for the crime of existing, and is then immediately snuffed out of existence by Jimmy, who has appeared in the doorway wielding a shotgun. Guess he really didn't like being called a racist, but I'm not sure how his response does much for his argument.

I respawn and give Jimmy a taste of the Bond beaters, before moving on to the next mission, repossessing a bike from a garage in Vespucci Beach. Unfortunately, the bike belongs to a local gangster, and the job quickly turns into a shootout. The good news is that Lamar gives me a gun, meaning I can now defend myself

I've heard of oncoming traffic, but this is ridiculous.

properly from whatever the *Chaos Mod* throws at me. That's what my idiot brain thinks about five seconds before the world explodes.

DEATH FROM ABOVE

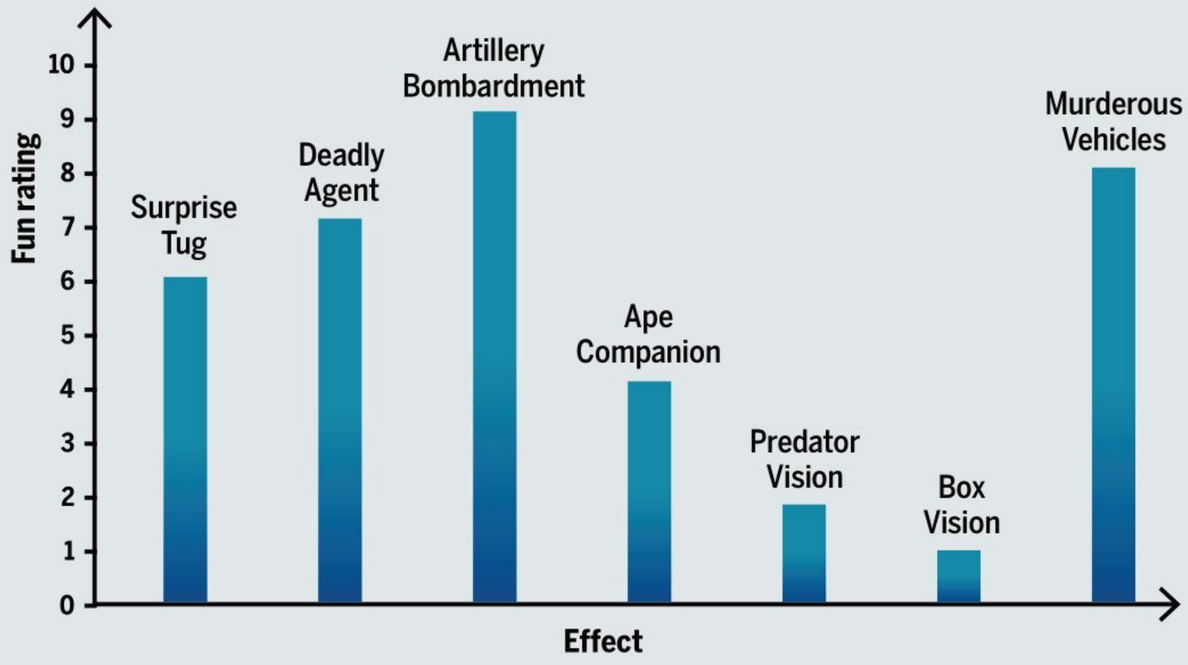
There's no other way to describe it. All around me explosions start going off, transforming a gang war into an actual war. The *Chaos Mod* appears to have triggered an artillery bombardment, although I can't know for sure because, just before this, I switched off the names of the effects to stop them clogging up the screen. I go through the alley to see the owner of the bike ride off on it. Great, now I have to chase him through the Blitz.

I'd like to say that I swiftly and dashingly navigated the bombardment and retrieved the bike with ease. I did not. Everything that could have gone wrong in this scenario did. Franklin exploded. Lamar exploded. My car exploded, forcing me to steal another car which also exploded. At one point I managed to shoot the rider off the bike, but both the rider and the bike exploded, as by this point the *Chaos Mod* had added another effect giving me exploding bullets.

Clearly the barrage counts as a long effect, and let me tell you, 15 minutes is a long time in a videogame, especially when that videogame has dedicated all its resources to blowing you up. I begin to think it might be impossible to complete this mission, when the *Chaos Mod* introduces a third effect – bullet time. This new effect does two things. Firstly, it makes driving through Los Santos during an artillery strike look cooler than a penguin wearing Ray Bans. Secondly, it makes weaving through traffic much easier, enabling me to get to the bike and shunt the driver off. I leap out of the car and clamber onto the bike. Now to take it to safety without being killed.

RAISING THE FUN BAR

The* Chaos Mod *is chaotic, but does it make the game more fun?



Unfortunately, alongside the *Chaos Mod*'s absurdity, *GTA*'s regular systems remain very much in play, and clipping another car as I turn a corner sends Franklin flying across the asphalt. In addition, the police are on my tail, believing that I'm somehow responsible for turning downtown Los Santos into Verdun. Now I'm in a treacle-speed gunfight with the cops while trying to make my way back to the bike before it's consumed by hellfire.

Somehow, I manage to take out the police in the immediate area, clamber onto the bike and give the fuzz the slip. By the time I arrive at my destination, both the bombardment and the bullet-time have stopped, while Franklin's character model has vanished, making it appear as if the bike is driving itself. Fair enough, to be honest. I think I'd want to disappear up my own arse after going through all of that as well.

Slowly, I make my way to the next mission. This is partly because I need a break, and partly because the *Chaos Mod* has disabled my ability to move sideways, making it impossible to drive. Indeed, it's worth noting not every effect the *Chaos Mod* throws at me is spectacular, or even fun. One spawns an ape that follows me around, which is certainly odd, but not exactly the height of anarchy. The mod also has a propensity for annoying screen effects, like a high-contrast Predator vision and reducing the visible display to a square box that dances around my screen. The worst effects, though, are the ones that disable parts of your controls. That isn't chaotic, *Chaos Mod*, that's just mean.

I manage to complete the next mission – which sees Michael take revenge on the dealership for taking advantage of his son – without incident. I wonder if the *Chaos Mod* is giving me a break, but instead it's merely biding its time. I exit the dealership, and see a blimp float down onto the buildings next to me. I assume the mod has just spawned a blimp, but then a helicopter does the same thing. Is air-traffic falling out of

Time for a well earned rest.

the sky? And that's when I notice the cars careering toward me at very high speeds.

MAXIMUM OVERDRIVE

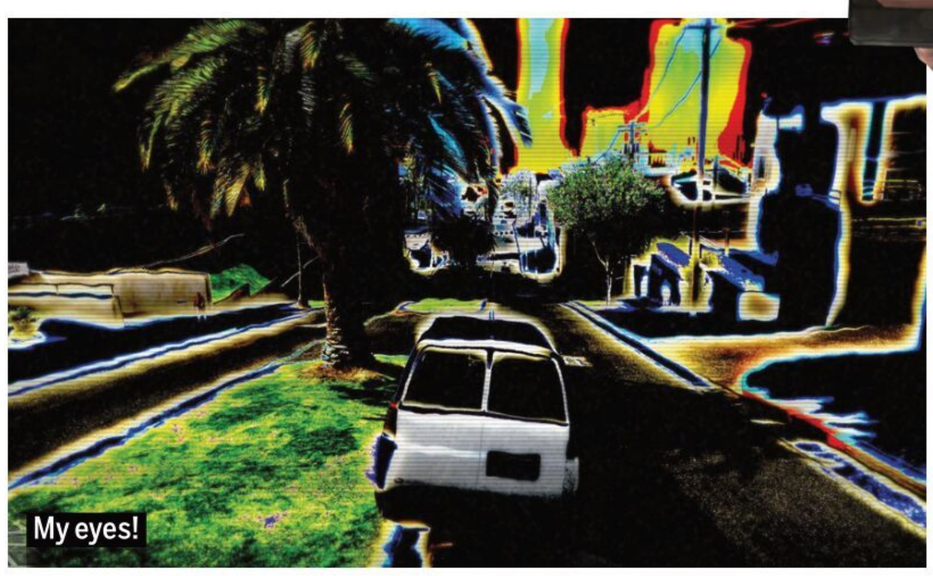
It appears the *Chaos Mod* has turned Michael into a universal vehicle magnet. Cars and trucks smash into each other as they scramble to be the first to run me down. Before I can react, I'm punted across the road by a black saloon. Climbing to my feet, I spy a ladder, and figure it would be wise to get off the road.

Ascending to the rooftop, I take a minute to admire the chaos below. Then I hear an engine behind me. Turns out this 'rooftop' is in fact a car park with an on-ramp. I go back down the ladder, and leap into the nearest car, which at least provides some protection from the vehicular hordes. With a moment to think, I reckon my best bet is simply to head home. Michael's house is walled off, and the next mission starts there anyway. Can I make it back without incident? No.

DRIVING WHILE EVERY VEHICLE IS TRYING TO RAM YOU OFF THE ROAD IS IMPOSSIBLE

Driving while every vehicle in *GTA* is trying to ram you off the road is almost impossible, while stepping out of a vehicle is like throwing a side of beef into the lion enclosure at the zoo. I die so many times I lose count. At one point I end up trapped under a bus, while distantly I can hear the sound of cars exploding in sequence, each one getting louder. I succeed in making it home once, but I'm immediately killed by some crazed jogger who spawns and shoots me, catapulting me back to the hospital. Eventually, I make it back by driving so fast the other cars don't have time to turn into my path. The random assassin is swiftly dealt with by the grille of my SUV.

I feel like I've had enough of the chaos for now. I've barely scratched the surface of the mod and already I've had enough shenanigans to fill an ITV 2 sitcom for its entire run. I leave Michael where he is, lounging by his pool with a whiskey in hand. For once in his life, he's really earned it. ■



Tiny Warthogs are not easy to drive.

That's... not... fire...

CURSED HALO

Halo: Combat Evolved gets absurd. *By Julie Muncy*

Booting up *Cursed Halo* feels, for a few moments, like any other *Halo* playthrough. The introductory cutscene rolls, Cortana makes some cheeky comments, the whole thing feels tense and grand. You've seen this before. Then the cutscene jumps to the preparations on board the Pillar of Autumn, and set against Sgt Johnson's tough-guy speech to the space marines you see a Warthog that looks... wrong. It's small. Like, way too small, like the Marines (still normal size) are about to be driving around in go-carts.

Well, you think. That's odd. But everything else seems pretty normal. You start up the campaign, settle into the Master Chief's several-hundred-kilo boots, and go visit Captain Keyes. He hands you a pistol and you rush to battle. Only once the fighting starts, you start firing and nobody dies. In fact, you start taking damage instead. It's only then that you look closely at the pistol and discover that its muzzle is, um, backwards. Instead of shooting at the Covenant, you're shooting at yourself.

Welcome to *Cursed Halo*, an experienced *Halo* player's worst nightmare. It's a mod for the 2003 PC port of *Halo: Combat Evolved* created by modder and YouTuber InfernoPlus. Here everything you remember about the game's complex sandbox, its mess of vehicles and weapons, is different. Sometimes in empowering ways, sometimes in frustrating ways. Mostly in absurd ways. *Cursed Halo* is cursed in the way of internet memery, suggesting something that's just weird in ways that don't fully make sense. The key here is the combination of oddness and inscrutability, the sense that something is going on that you do not understand and likely do not care to. It helps, also, that it's hilarious.

Cursed Halo isn't remarkable merely because it's strange, or because it subverts player expectations. Lots of mods do that. What's special about *Cursed Halo* is how elegantly it toys with the systems of Bungie's magnum opus, the unique experience it creates while doing so, and what it reveals about how robust *Halo: Combat Evolved*'s sandbox really is.

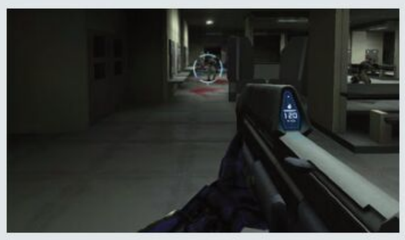
HELL FOR SPACE MARINES

If you've encountered *Cursed Halo* outside of this article, chances are it was on YouTube or Twitch. Despite the drought of new *Halo* games over the past few years, a vibrant *Halo* scene still remains, and over the past year or so a lot of its prominent players have latched onto *Cursed Halo* as an object of fascination. It's understandable why: it's absurd, and absurd things are extremely fun to watch. The mod feels, in a way, designed for streaming, giving the player every reason to yell and scream and flinch at each new twist on familiar levels. It plays perfectly into the exaggerated affectations of game streaming.

THE KEY HERE IS THE COMBINATION OF ODDNESS AND INSCRUTABILITY

But if you haven't seen *Cursed Halo* before and have no idea how cursed it can be, consider folding this page over and playing it right now. (Don't worry, I'll wait.) The mod itself is readily available online, though at the time of writing it only worked with the original Windows

WORST FIRE *Meet your new arsenal*



BATTERY GUN
Giant magazine. Might/might not explode.

FLACCID SNIPER RIFLE
Look, everyone's been there. There's no shame in it...

BITCRUSHED PLASMA RIFLE
Like a Plasma Rifle, but more pixelated. Actually super useful.

NES ZAPPER GUN
Fires NES cartridges. Admittedly not very effective.

MAGICAL GIRL GUN
In the name of the moon, I'll punish you!

edition of *Halo: Combat Evolved*. While that version is no longer officially for sale, copies are still easy to find online. And since this article was originally published, you can run this mod using *The Master Chief Collection*.

The backwards pistol was just a warning sign of things to come. The sniper rifle? It's, uhh, flaccid. The shotgun has been replaced by a blunderbuss, a slow-moving hard-hitting projectile weapon that's just as likely to send you flying across the map as it is to kill a cluster of Grunts. And don't get me started on the frag grenade, which is now the d20 grenade. As the name implies, it has 20 different effects that deploy at random every time you throw one.

Once I threw a grenade to try to get myself out of a rough situation while exploring the surface of the Halo ring in the game's second, stunningly pastoral mission. Instead of exploding, the grenade released a small army of Flood, which proceeded to kill all the Covenant and then also me. Another time, a desperate grenade throw did nothing but spawn a small, encouraging party horn, complete with confetti. The Covenant, apparently, are not weak to confetti. Who knew?

These design changes, which almost exclusively affect weapons and vehicles, are enough to turn the familiar experience of *Halo* into mayhem. Every situation where I was once on autopilot now requires much more creative thinking. Surviving *Cursed Halo* is a desperate balancing act that not only includes managing enemy AI but also the significant drawbacks of each weapon, many of which are now liable to hurt you just as much as the Covenant. Not all the weapons are necessarily bad, though they are all extremely silly. There's a new variation of the plasma pistol called the magical girl gun, which shoots hearts. The hearts are homing projectiles and can do pretty effective damage when stacked, making new variants of Grunts and Jackals with the guns high-priority targets, both for safety and for the sake of getting ahold of that sweet Sailor Moon magic. Likewise, the *Minecraft* swords wielded by a new Elite variant? Shockingly effective.

GET SMART

What's striking is how well the existing systems in *Combat Evolved* adapt to these changes. The AI in *Halo* is exceptionally complex, particularly for a 20-year-old game built for the Xbox, and the enemies you face mostly just... roll with the changes. The enemies here, from the ferocious warrior Elites to the wimpiest Grunt, don't behave like they've been retrofitted with

EVERY SITUATION WHERE I WAS ONCE ON AUTOPILOT NOW REQUIRES MORE CREATIVE THINKING

weapons that they weren't programmed for. Instead their new damage and aiming models just become the new norm, and the Covenant remain as dangerous as ever. Though since they're saddled with the same weapons as you are, they do often kill each other as readily as they do you. Fair's fair.

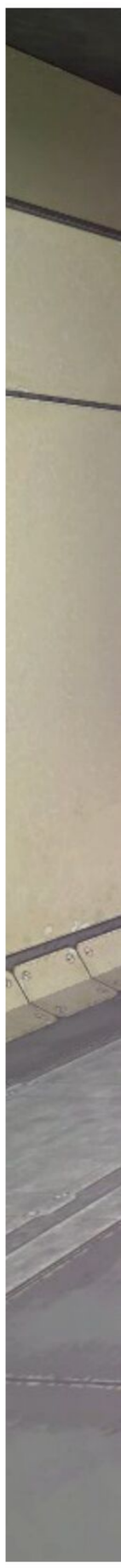
Even the cutscenes, which apparently are rendered fully in-engine using whatever assets are available to them (like, say, magical girl guns), adapt smoothly. Well, mostly. The new weapons and vehicles appear in the cutscenes, which occasionally breaks the scripting. In the intro to 343 Guilty Spark, when you see Captain Keyes fight off the Flood, he, uh, has an accident with his backward pistol. It's fine! He's fine! Everything's fine here.

Cursed Halo takes the original game's refined sandbox and twists it into a madcap paean to absurdity. It's a game now constantly at odds with itself, the serious-minded space marine shooting his way out of a reality that is falling apart around him. Projectiles screaming in all directions, mainstay weapons turning into flailing dick jokes and pixelated memes. Not all the gags work – a bit too many are sex and fart jokes – but most of them do. Even the flavour text and mission objectives get in on the gag. During the nighttime raid of Truth and Reconciliation, you get a helpful piece of advice regarding night vision: "Press Q to turn the world green." Well, that's not *wrong*.

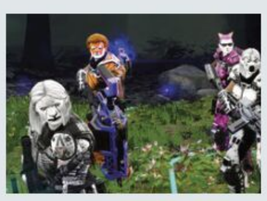
It's easy to imagine a mod like this being unplayable or inordinately frustrating. And, at times, *Cursed Halo* is infuriating. But it maintains just enough of the game's original balance, and relies heavily enough on the established interplay of systems, that it remains a conquerable challenge. Weapons do work, and dominant strategies do emerge. They just make no sense, anchored in a set of rules that bear no resemblance to any realistic combat ever waged in games or real life.

The new rules work, and they work because the base systems here are so solid. The interplay that Bungie created remains genius: guns, grenades, and melee attacks all impact enemies in different ways, allowing for combat to feel wildly different at different ranges, while the AI is advanced enough for every enemy unit to feel distinct. *Halo* is full of complexities to nudge at, like the way Elites tend to start climbing on rocks and boxes when they're pressured, which a smarter player can use to single them out. A Grunt without a commander will still run away. You can still find weaknesses to exploit and behaviours to punish.

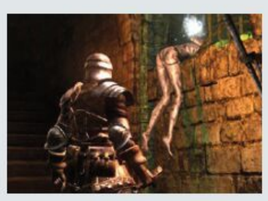
Games have a hard time rendering absurdity in mechanics. They focus on rules, after all. Subverting those rules might make a game suitably ridiculous, but it rarely keeps that game fun to play. By relying on the existing systems within *Combat Evolved*, *Cursed Halo* strikes that balance better than most professionally made comedy games manage. It's fun while also being stupid, absurd without being fully broken. It's a blueprint for how to create this sort of game, building on top of *Halo*'s foundation with surprise and humour. This is the excellence of *Cursed Halo*, and points to the power of Bungie's classic game itself: even absurd, it's still *Halo*. ■



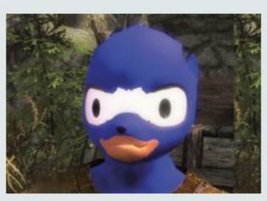
GO CURSE YOURSELF *Some more 'cursed' mods to try*



ANIMAL FACE PAINT FOR XCOM 2
One look at you and your silly cat-face and Advent might just pack up and leave the planet.

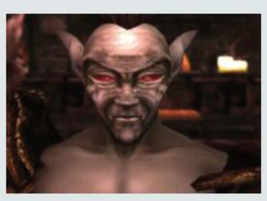


DARK SOULS: DAUGHTERS OF ASH
Remember when you first played *Dark Souls*, and it ruined you life? This is that but worse.



SKYRIM'S CRIMES AGAINST NATURE
Twelve new Skyrim races that are... we'll be diplomatic and say 'distinct'.

AEUHHH???? FOR DOOM
Home Improvement texture/sound replacement. Tim, did you let the demons into the garage again?



IMMERSIVE MADNESS FOR MORROWIND
There's a quest where you help an orc find his lost butt. That's all the incentive you need.

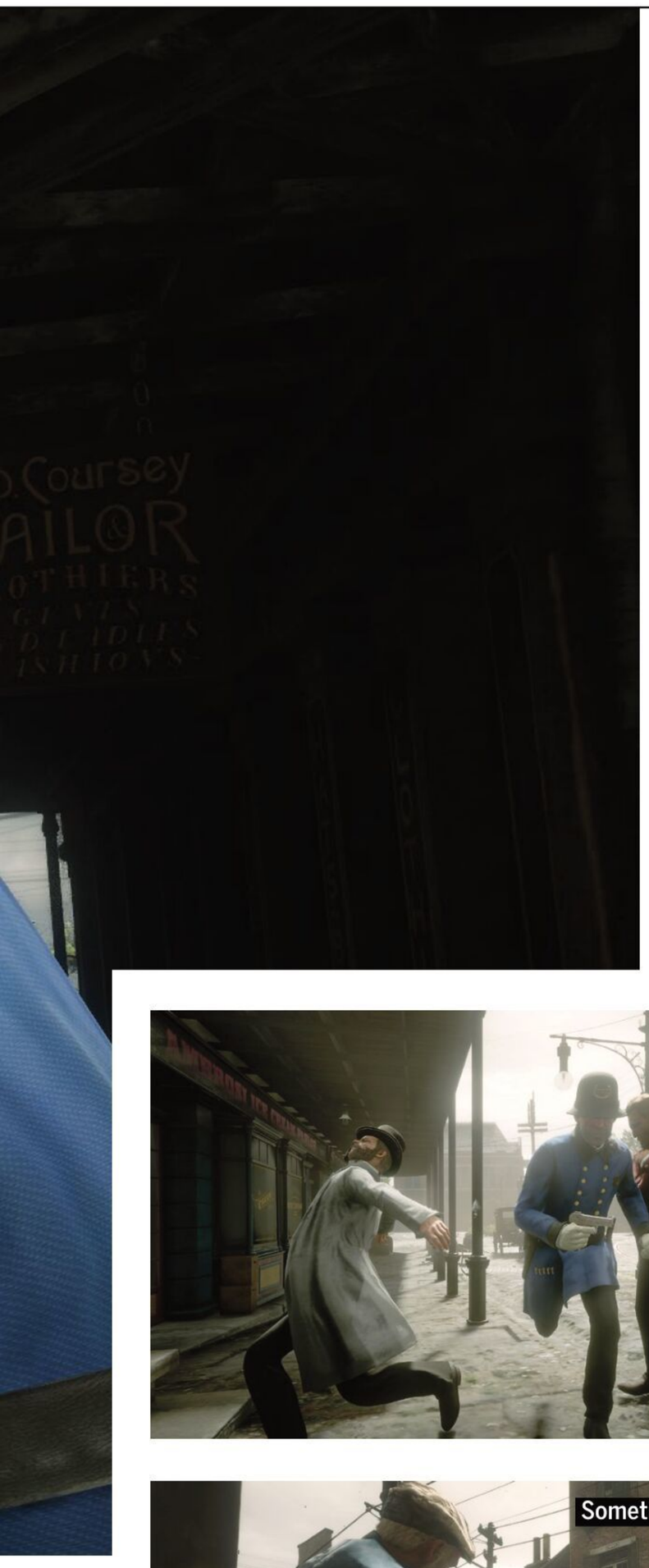
Use "Q" when zoomed in to make the world green
Yeah, fair.

Me and the boys hitting the club.

102
This Grunt isn't mad. He just loves you.

Frisk suspicious people before arresting them.

Sorry to interrupt your dinner, but you're coming with us.



RED DEAD REDEMPTION FIRST RESPONSE

Be the law with this *RDR2* mod. *By Christopher Livingston*

It's not that it's impossible to do some good deeds in Rockstar games like *GTA V* and *Red Dead Redemption II*. It's just that more often than not, you're on the other side of the law. Doing crimes. Getting chased. Fighting the cops. Being an upstanding citizen isn't really the aim of any of Rockstar's playable characters. (And most of Rockstar's law-enforcing 'good guys' are just as terrible as the crooks.)

But in worlds built on crime and criminals, it can be fun to play from the other side of the handcuffs from time to time. *Red Dead Redemption First Response* (*RDRFR*) is a mod that lets you play as the law. Be the sheriff in a small town. Serve as marshal and hunt down outlaws. You can even be a copper in the city of St Denis. It's similar to the mod for *GTA IV* and *V* that let you fight crime as the police.

And conveniently, once installed, you can choose to activate the mod whenever you want in your singleplayer game. Just walk into the sheriff's office in any town (you'll see the star on your map showing you where) to begin your shift. Also inside the sheriff's office you'll see a wardrobe you can use (if you want) to change your clothes into the sheriff's uniform you like most, from the classic St Denis cop uniform to a marshal's outfit to just normal cowboy clothes that have a shiny star pinned to the vest. You can even change your character model, if you want to get into the roleplaying a bit more, and cycle through randomised lawmen until you get one you want. When you go off duty, your character will switch back to Arthur Morgan.

I DECIDE TO BEGIN MY LAW ENFORCEMENT CAREER IN THE TINY, DUSTY TOWN OF TUMBLEWEED

I decide to begin my law enforcement career in the tiny, dusty town of Tumbleweed, imagining I'm a brand-new deputy with no experience. And if I do some good, I'll eventually promote myself to a nicer and bigger town. I walk into the jail, activate the mod using the ledger on the sheriff's desk, then visit the wardrobe to choose my lawman, finding a scruffy old coot with a moustache. Perfect! I look like the least-drunk of the town drunks, the guy a sheriff would swear in as a deputy simply because he was the best out of a bunch of awful choices.

As I stroll around town, a citizen runs up to me to report a crime. That

MOD JOBS

Other professions I'd like to see in Red Dead Redemption II *mods*

FARMER
Just let me pitchfork poop and carry hay bales all the live-long day, and I'll be happy as a clam.

STAGECOACH DRIVER
A ticking clock, a nervous passenger, and lots of ground to cover.

POSTMAN
Can't think of a better way to explore the world than with a big sack of mail and a list of addresses to visit.

PHOTOGRAPHER
I'm obsessively taking pictures in *RDR2* anyway. It'd be nice to be able to frame 'em and sell 'em.

was quick! A horse has been stolen, and my first job is to recover it. Thus begins my career in law enforcement, which results in an entire day chasing one damn horse all over the map. I'm not sure if it's the mod or if it's me, but the act of calming the horse just isn't working. When I get anywhere near the horse, it bolts. I try riding my own horse after it, I try sneaking, I try walking slowly and calmly, I call to it, but the horse is so damn skittish I simply can't catch it. This isn't the sort of crime I'd pictured myself facing when I signed up. Chasing horse thieves down, sure. Simply following a runaway horse? No. I eventually give up, go back to the jail and go off duty. Not a great first day.

The next day is more promising. Another citizen runs up just as I go on duty, telling me there's a wanted killer in town. The map shows a search area, which covers almost the entire town, as well as a few small pips on my minimap indicating citizens who might have some information. I stroll around, ordering people to stop what they're doing and talk to me through a new interface added by the mod. Sometimes they'll give me information about what the fugitive looks like. Other times they'll give me a location. Sometimes they'll simply refuse to help even if I threaten them. But once I have two pieces of information about the fugitive, they're revealed on my map and I can chase them down.

GRAVE MISTAKES

I locate the first fugitive thanks to a woman standing in the town's graveyard. It seems a bit rude to interrogate a mourner, but the law doesn't sleep. She tips me off to a guy near the saloon. But as I creep around the back of the building, he comes down the steps and pops me right in the dome. I'm dead! My career as a lawman so far consists of failing to catch a horse and getting shot in the face. Great.

After respawning, I take another shift, and use another feature of the mod: the ability to recruit a partner. I walk over to a fellow sheriff and tell him to follow me as we begin searching for another fugitive in town. This time I narrow down the culprit's location to the graveyard, and wouldn't you know it? It's the same woman who gave me the tip about yesterday's fugitive. She opens fire when we get close, so I sprint around the corner and get out my lasso, determined to make my first arrest. I nab her with my rope but my partner didn't get the memo. He keeps shooting and kills her.

Cloaked in failure, and feeling Tumbleweed is a bit too small to fight crime when there's only a handful of people who can turn out to secretly be villains, I head to Blackwater, more of a proper town. Maybe here I'll get a little more action and a

MY CAREER AS A LAWMAN SO FAR CONSISTS OF FAILING TO CATCH A HORSE AND GETTING SHOT

chance to actually arrest someone properly. The fates aren't with me, however. A woman runs into the sheriff's office to report a fugitive, and I start interrogating the locals for clues. One fella won't cooperate, but two more give me the perp's appearance and location. Which turns out to be right across the street from where I'm standing, and he immediately opens fire. I ready my lasso to arrest him, but some enterprising citizen takes out a gun and shoots the suspect in the head. Sheesh! With citizens as trigger-happy as that, does the town even need an extra sheriff?

The next crime is a group of armed outlaws, who strangely spawn in the water and slowly swim to shore while I patiently wait for them with my rifle. It's a decent gunfight, and I manage to lasso the final outlaw and ride him back into town on my horse. I throw him in a jail cell, but having failed to frisk him, he pulls out a knife and stabs me. I want to be very clear that my intent was to punch him. And I do punch him! Unfortunately, I am *also* holding a knife, so my punch kills him. Whoops. I lock the cell door and slink away, with yet another arrest that's been utterly tarnished.

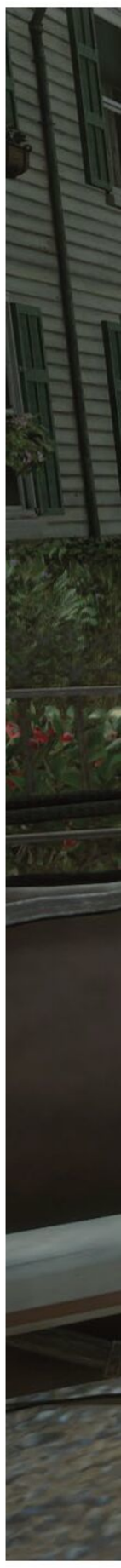
ARCANE LAW

OK, enough small-town blues. It's time for the big city – St Denis. I have in no way earned my promotion, but I'm taking it anyway. And here, things finally begin going my way. Another fugitive investigation leads me to find the suspect calmly eating dinner in the saloon, and me and my partner get to approach his table with our guns drawn, tell him to put his hands up, frisk him for weapons, then tie him up and call for backup (by blowing my police whistle) to take him away on their horse. It's like an episode of Law and Order, except the cops on that show use handcuffs instead of lassos and usually don't take suspects away on horseback. But most importantly, I've finally arrested someone and there wasn't any bloodshed! Chalk that one up!

Not all suspects go so quietly, and there are still a few shootouts that day. But one crook leads me on a nonviolent chase through the city – he's not shooting but he's not surrendering, either – letting me sprint down the sidewalks knocking people out of my way until I finally put a single round in his leg, and then tie him up. That was fun!

The shootouts in St Denis are usually exciting, too. With so many (relatively) tall buildings, narrow alleyways and gated areas, the crooks can appear on rooftops, behind fences and inside buildings. It's fun racing through the city while my partner follows, taking cover and trading hot lead with the outlaws because you never know exactly where they'll appear. I'm killed once, my partner was also gunned down, and a few times we wound up with wounds but still come out ahead.

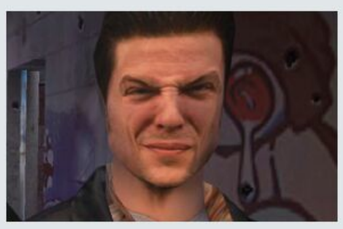
So if you try *RDRFR* yourself, I'd definitely suggest the St Denis beat. It just works much better there than in the smaller, scruffier towns. Just stop by the sheriff's office and go on duty for a few hours. And when you're done, you can go right back to being the outlaw in the equation. ■



POLICE SQUAD: IN COLOR

Our favourite video game law enforcers

HARRY
DISCO ELYSIUM
This detective who can die from kicking a mailbox won a place in our hearts.



MAX PAYNE
MAX PAYNE
He's incredibly expressive yet only has the one very pained expression.

COLE PHELPS
L.A. NOIRE
Who could dislike the star of the 'Doubt' meme and his rubbery face?

SAM & MAX
A BUNCHA GAMES
The freelance police always tackle the biggest and strangest cases.

Interrogate citizens who may have witnessed a crime.

I wish I had a little notebook, too.

You can even pull over carriages.

It's shocking to see an *Assassin's Creed* game where the protagonist is an unlikable dick

The bird analogies are strong in *AC1*.

ASSASSIN'S CREED

Novel ideas save Altaïr from falling on his face. *By Joseph Knoop*

According to *Assassin's Creed*, the fine people of Damascus, Jerusalem and Acre only had about three lines of employment: carrying breakable vases on their heads, accosting citizens accused of petty crimes, or just getting 30 miles a day in on their medieval Fitbits. It's a far cry from the endless realms of *Valhalla*, *Odyssey* and *Origins*.

The original *Assassin's Creed* cares not for your RPG mechanics, however, fixating almost solely on exploring the world of the Crusades, collecting intel, and assassinating nine Templar leaders. I've contended for years that its brand of social stealth was where the franchise ought to have focused, rather than going bigger and bigger with each successive entry. I may have been wrong, though.

From the get-go, it's shocking to see an *Assassin's Creed* game where the protagonist is an unlikable dick. Future entries lived and died by how popular the player character was, and Altaïr is nothing short of a murderous bad boy. Within minutes of knowing him, he stabs an innocent old man in the back, gets one accomplice killed and the other dismembered, and mouths off to his elder like a teething child. When one of Altaïr's fellow assassins chides him for an unnecessary murder, saying "this is not the way," Altaïr responds with "my way is better," which sounds like a phrase you'd see on your 12-year-old cousin's T-shirt.

It doesn't help that Altaïr's voice actor could still land a Razzie by most modern standards. For a game that starts off with the trademark disclaimer about the team's multicultural makeup, hearing a distinctly American voice come out of an ancient Syrian feels like a weird betrayal of that commitment. To be fair, actor Philip Shahbaz is Iranian-American, but little of that identity seems to come through in Altaïr's progression as a character, which unconvincingly transitions from sour grape to remorseful curmudgeon with all the grace of a dead Templar.

Midway through his redemption, Altaïr's leader asks him how he knew he wouldn't kill him as punishment for screwing up. Altaïr's answer is simply, "I took a leap of faith." Woof. To its credit, the ultimate twist of *Assassin's Creed*'s plot (Altaïr's mentor is corrupted by the mystical Apple of Eden, throwing the implied benevolence of the assassin brotherhood into disarray) massively pays off throughout the rest of the

NEED TO KNOW

RELEASED
November 13, 2007

DEVELOPER
Ubisoft Montreal

PUBLISHER
Ubisoft

LINK
bit.ly/3o8MYzE

series. We like to harp on Ubisoft for being 'apolitical' with its storytelling, but the historical fiction of the Assassin vs Templar wars has provided for plenty of multilayered characters and motivations without it feeling like 'both sides' stupidity. Knowing the Brotherhood is fallible, makes its victories and failures that much more meaningful.

SIDE DISHES

Assassin's Creed's strongest portions to this day remain the assassinations themselves. To get to them, though, you have to slog through a city's side missions, which include identical tasks like pickpocketing, beating up rabble rousers in alleys, or rooftop running time trials. That's it for variety, and the inclusion of hundreds of collectible flags doesn't help, but I did appreciate that reconnaissance missions actually gave me a small piece of intel that could, in theory, play into my final assassination.

An early bit of investigation led me to discover that my target, a Templar surgeon in charge of a ward full of mentally ill people, often focuses on his patients to the detriment of his immediate surroundings, making him an easier target. It's nowhere near the depth of more immersive games, like stumbling upon some casual cannibalism in a *Fallout 3* town, but it does give you a little more familiarity with your target. Not enough to feel anything terribly personal towards them, but that's where another part of *Assassin's Creed* comes in to play.

Though these days it feels like Ubisoft is more known for huge open worlds, it's impossible to miss how *Assassin's Creed* influenced the arc of post-2007 storytelling. Each assassination mission kicks off with a cinematic introduction to your target just as you walk up, almost never ripping away from your perspective. When Altaïr finally plunges the good ol' wrist-blade into his back, players are treated to a sort of side-stage conversation between the two. Each victim gets their monologue, ripping into Altaïr with the bravado you'd expect of a villain, but also with the genuine grief that he could not see the world the way they did.

Though future entries did it with more flair, it's striking that *Assassin's Creed* was confident enough in its storytelling to sow seeds of doubt in

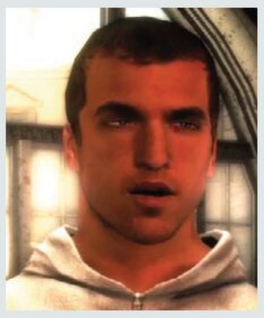
BEHIND THE HOOD

Assassin's Creed's *surprisingly notable actors*

KRISTEN BELL

Voices: Lucy Stillman

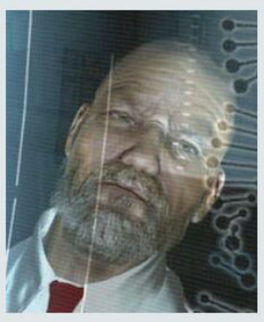
Seen in: Frozen, The Good Place, Veronica Mars



NOLAN NORTH

Voices: Desmond Miles

Seen in: *Uncharted, Destiny, The Last Of Us*



PHIL PROCTOR

Voices: Warren Vidic

Seen in: Monsters Inc, Tarzan, Rugrats

The crowd loves a show.

UBISOFT ASSIGNED EACH SIDE OF YOUR BODY TO YOUR CONTROLLER'S FACE BUTTONS

its player. But what is a narrative without a world to tell it in? It's crazy to think that Ubisoft believed it could get away with designing three major cities, an assassin village and a sizeable overworld connecting it all.

CITY SLICKER

And you know, Ubisoft didn't get away with it. Despite Jerusalem, Damascus and Acre being very different regions, each city feels bereft of cultural signifiers besides one or two notable landmarks, like the Dome of the Rock in Jerusalem or the port in Acre. Even worse, each city was seemingly built by the same architect, each building a basic square or triangle as if shunted into place like a Lego block rather than naturally layered over the years. This makes each place feel far too similar to the last.

I wonder too how confident Ubisoft was in its climbing tech at the time, considering Altaïr gets tripped by anything other than a 90-degree angle. There's nothing quite like leaping over three support beams, swinging through a merchant's stand with some impeccable animation, and eagle-diving into some hay.

Consider me still very impressed by the controls, where Ubisoft assigned each side of your body to your controller's face buttons. It forces you to be conscious of how you're using your body in the moment, be it to shove a man out of the way or sidle around his guard. Nowadays, even *Valhalla* relies on a fairly standard light and heavy attack system that only considers your body when it's time to dual-wield shields.

Then there's the overworld that connects the cities, a large yet surprisingly linear procession of huts and military camps bookmarked only by more towers to climb. It's weird because it shows the scope of Ubisoft's ambition years before it would really nail it. I'd wager it was meant to house much more to do, but instead we just get some innocuous horseback riding.

There's also a number of NPCs that haven't aged well, including the homeless people exhibiting signs of mental illness who violently shove you, or the small army of beggars that always happen to be women. To Ubisoft's credit, the cast is well-rounded with (mostly male) actors representative of each region.

I realise I've spent much of this ragging on *Assassin's Creed*, but it's easy to see why this franchise took off the way it did, save for a few resets. *Hitman* was already on the scene as a sort of social stealth experience, but *Assassin's Creed* was truly a next-gen horsepower showcase, and it wasn't afraid to show that off. The camera is closer to the player, more intimate, and not so much the typical third person of recent tries. The pacing is nowhere near the breakneck speed of *Valhalla*, but to see Middle Eastern cities realised so expansively was groundbreaking for the time.

Assassin's Creed is a testament to Ubisoft's strengths as a studio, where scope was just a word and every gamer's natural instinct for historical murder tourism can be explored with some genuine zeal. Altaïr may be a fumbling mess at many times, but he walked so we could run. ■

Now that's dynamic lightsaber combat.

STAR WARS: KNIGHTS OF THE OLD REPUBLIC

Revisiting the RPG in a time when Star Wars is everywhere. *By Andy Kelly*

Like many people, I recently finished season 2 of The Mandalorian and was left with a hunger for more Star Wars in any form. I rewatched the original trilogy, read a selection of graphic novels and books (including Steve Perry's brilliant Shadows of the Empire), and – and best of all – decided to replay BioWare's classic Star Wars RPG *Knights of the Old Republic*.

The last time I played *KOTOR* was around the time of its UK release in the autumn of 2003, and it was the perfect antidote to the disappointing prequel trilogy. George Lucas was two films deep by this point. Attack of the Clones was released the year before and I was not a fan, to put it mildly. But here was this videogame, set 4,000 years before Luke Skywalker, Darth Vader, and the Death Star, reminding me of why I loved Star Wars in the first place. A rare, thrilling chance to explore the ancient, unseen history of my favourite fictional universe.

Today, after years spent drifting in the pop culture Dune Sea, Star Wars is in a very different place. A whole new film trilogy has been and gone, along with several spin-offs. The series successfully made the jump to the small screen, including the aforementioned Mandalorian, which is the most I've enjoyed a Star Wars thing in ages. And owner Disney just recently announced a galaxy's worth of new movies, books, and TV shows. Honestly, it's a bit much.

The Force Awakens landed so perfectly because it had been years since the last good Star Wars film. Rise of Skywalker, by most accounts, did not – not only because it was a cowardly retcon of The Last Jedi and ultimately just a bad, confused film, but because people were sick of Star Wars, at least in its traditional form. I went to a midnight screening of Awakens, and I didn't even bother seeing Rise on the big screen. They lost me. So as much as I enjoyed The Mandalorian, which reignited my passion for the series in a big way, I wondered if by installing *KOTOR* I was at risk of reaching Star Wars overload once again.

NEED TO KNOW

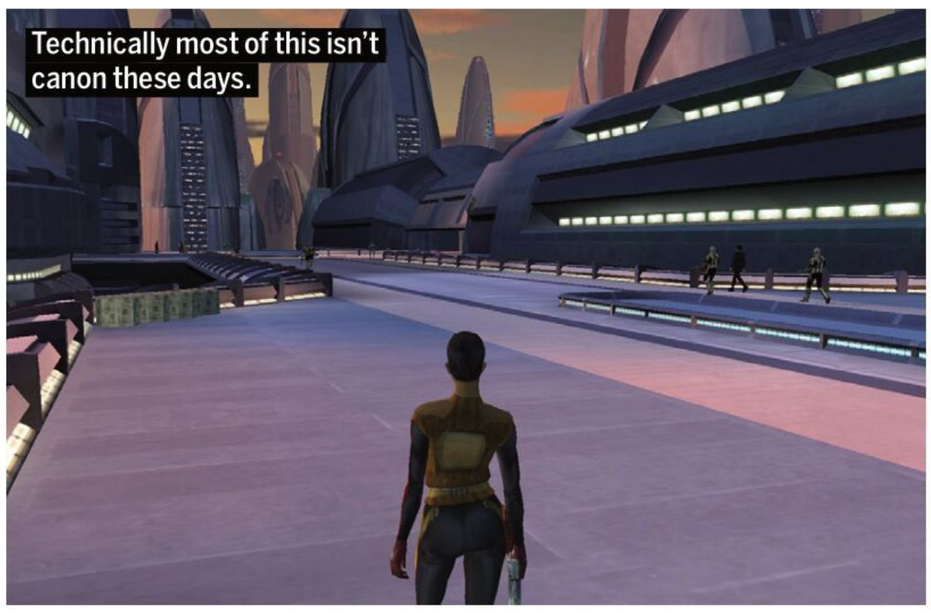
RELEASED
2003

DEVELOPER
BioWare

PUBLISHER
LucasArts

LINK
bit.ly/starwarsknights

Rocking the double lightsaber 4,000 years before Maul.


Technically most of this isn't canon these days.

You'd be furious too if you had to live on Tatooine.

But what sets BioWare's game apart, even after all this time, is where it sits on the timeline. Most of the Star Wars stories being told today revolve around the Skywalker clan and other events from those nine films. Even The Mandalorian, which did a good job of carving its own path through this galaxy, succumbed to the temptation – particularly in the latter half of season 2. But by throwing you back to the days of the Old Republic, *KOTOR* gives you a fresh perspective on this universe, letting you witness its rich and storied history first-hand.

GOLDEN AGE

When the game begins, the Republic is at war with the Sith, led by the evil Darth Malak. The Jedi have been left scattered and vulnerable, with many turning to the Dark Side and joining Malak's growing army. And that's where you come in, a hero with a mysterious past who joins the dwindling Jedi Order and embarks on a quest to stop Malak and his powerful Sith fleet. Those are the broad strokes, but things get a lot more complicated – especially when the protagonist learns, in a very Star Wars plot twist, a shocking truth about their shadowy past.

Of course, there's the question of canon. It's a great story, but did it 'really' happen? Another big change that occurred between *KOTOR*'s release and now is that the events of the game may no longer be part of the main Star Wars continuity. When Disney snapped up Star Wars it categorised this game, and countless other Star Wars spin-offs from the so-called expanded universe, as 'Legends'. That said, some things BioWare created for *KOTOR* – the planet Taris, card game pazaak, and the Selkath race, to name just a few – have appeared in projects that are considered canon. So the whole situation is a little unclear. There's also a rumour that screenwriter Laeta Kalogridis is working on a *KOTOR* movie for Disney, so maybe this story, if the film sticks closely to it, will be canon after all.

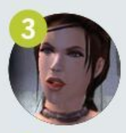
Really, though, it doesn't matter. Just because the classic short story anthology Tales of the Bounty Hunters is as non-canon as it gets doesn't mean it isn't still a fun collection of Star Wars yarns. And even though we now know it was

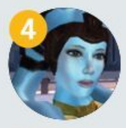
PARTY ON

Best to worst companions

1 **CARTH ONASI**
Soldier, hero, nice guy, handy with a blaster.

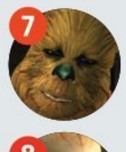
2 **HK-47**
Assassin droid who despises all organic life.


3 **BASTILA SHAN**
Powerful Jedi, knows her way around the Force.


4 **MISSION VAO**
Tough-willed teenage Twi'lek with an attitude.

5 **CANDEROUS ORDO**
Cranky Mandalorian with a very large gun.

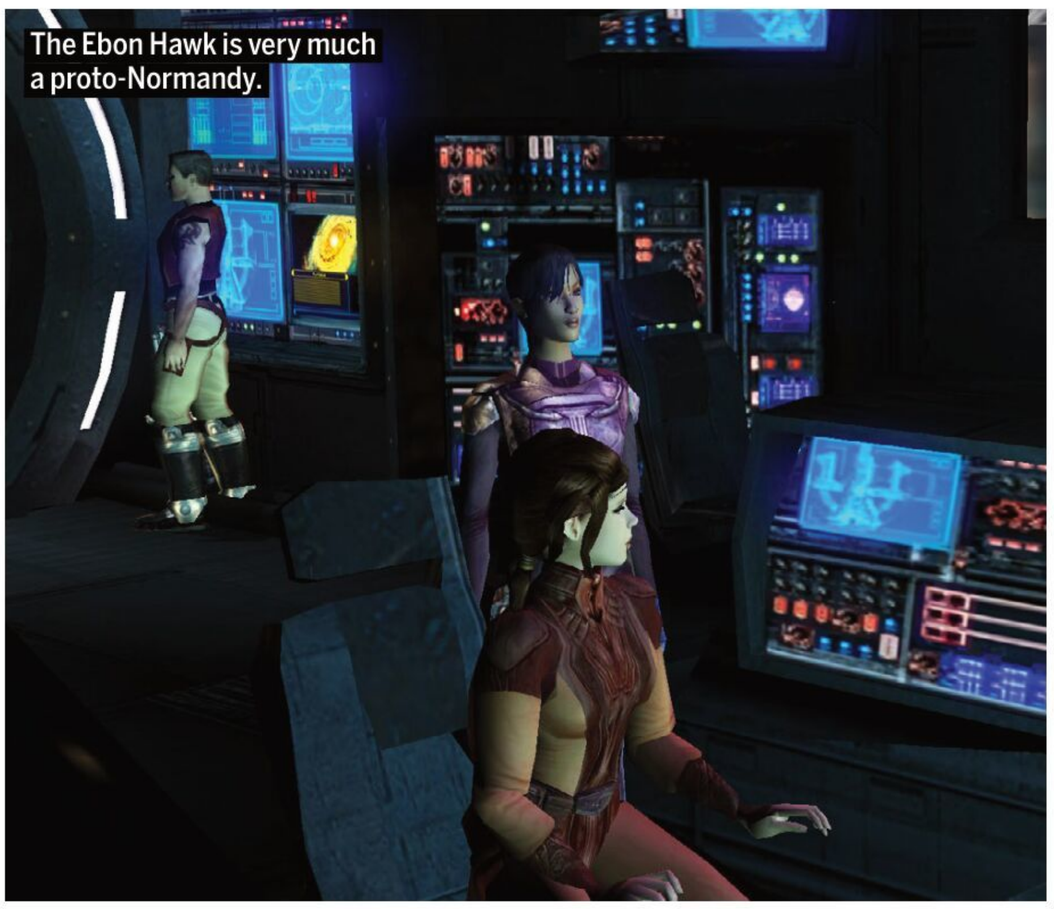
6 **JOLEE BINDO**
Wry old Jedi who straddles the Dark and the Light.


7 **ZAALBAR**
Likeable Wookiee, but never has much to say.

8 **JUHANI**
Kinda boring Jedi you can save from the Dark Side.

9 **T3-M4**
Astromech droid with no actual personality.

Mandalorians weren't always as stylish as Pedro Pascal.


The Ebon Hawk is very much a proto-Normandy.

About to drop the freshest album this side of the Rim.

Rogue One's Jyn Erso, not Kyle Katarn, who stole the plans for the first Death Star from the Empire, *Dark Forces* remains a superb Star Wars game. Some fictional universes benefit from a consistent, traceable timeline, but Star Wars is like a myth, a fairytale, and that makes this less important. Who really knows what happened 4,000 years ago? *Knights of the Old Republic* is just one possible version of those events.

However, despite the chronological gulf, *KOTOR* still has plenty to scratch any Star Wars itch you might develop. If anything, BioWare made its take on the universe a little *too* similar to classic Star Wars – especially considering the amount of time that's supposed to have passed between this game and the original trilogy. But I'll let it slide, because the established language of Star Wars – blasters, speeders, astromech droids, cocky smugglers, pious Jedi, and so on – lays a familiar foundation to tell this new story on. BioWare could have created something completely different and alien, and I'm sure they would have done a great job of it, but it might not have felt very Star Wars.

And even though some of the lore has since been contradicted by Jon Favreau and Dave Filioni's TV show, a heavy Mandalorian presence makes *KOTOR* particularly enjoyable if you've just finished watching the adventures of Din Djarin and his tiny green Force-sensitive friend. At this point in time the Mandalorians have just lost a war, scattering their clans around the galaxy. You run into a few of them, including a gladiator named Bendak Starkiller (no relation to the hero of *The Force Unleashed*), and Sherruk, the powerful leader of a gang of raiders who loves nothing more than killing Jedi and collecting their lightsabers as trophies.

You also party up with a Mandalorian: a grouchy war veteran named Canderous Ordo, whose Dark Side alignment makes him an ideal companion for anyone role-playing as such. And if you're not, then he always has a sarcastic remark ready when you follow the Jedi Code and deny a reward for doing a good deed. Turning down credits gets him particularly hot and bothered. I also really like BioWare's take on what

OUTER WORLDS *A selection of the planets you visit in* KOTOR

DANTOOINE
A quiet, remote world where the protagonist learns the ways of the Jedi, and tests their new lightsaber out on a group of Mandalorian raiders.

TARIS
A planet-sized metropolis. The upper city is safe, relatively speaking, but the dangerous lower levels are ruled by crime-loving swoop-bike gangs.

TATOOINE
A barren desert world you may have heard of before. When the protagonist arrives, the Czerka Corporation has laid claim to the planet.

MANAAN
A vast ocean-covered planet. The protagonist visits its capital where they uncover an evil Sith plot to brainwash children who are Force sensitive.

Why do Star Wars games always make you fight so many animals?

KOTOR IS SET IN THE OUTER RIM – THE WILD, LAWLESS PART OF THE GALAXY

Mandalorian armour might have looked like thousands of years ago. It's actually quite different, but the T-shaped visor is a nice visual link to the Beskar gear that we're used to seeing being worn by the likes of Boba Fett and Bo-Katan.

OUTER SPACE

And like The Mandalorian, most of *KOTOR* is set in the Outer Rim – the wild, remote, often lawless part of the galaxy where all the best Star Wars stories take place. Taris, the first planet you visit, is like a rougher Outer Rim take on Coruscant – a planet-sized metropolis plagued by crime and ruled by ruthless swoop bike gangs. You also get to visit the quiet agrarian planet of Dantooine, which Princess Leia mentions briefly in A New Hope, and find it besieged by Mandalorian raiders looking for something to do now that they don't have a war to fight. And, of course, there's a stop at Tatooine, the most significant planet in the entire Star Wars mythology, whose desert surface is being strip-mined by the Czerka megacorporation.

But is it still fun to play? *KOTOR* regularly makes lists of the best Star Wars games, but I often wondered how much of that was fuelled by nostalgia. So I was glad to discover that, while rough around the edges, it remains a great RPG. The environments are nicely varied, with compelling self-contained stories relevant to each world's politics and history. The personal journey of the hero, and how they handle that big revelation, is well written and emotionally impactful. The companions are memorable; both in their interactions and how they respond to your decisions. It's still clunky, with a messy UI and stiff animation, but the challenging combat, reactive quests and strong writing absolutely hold up.

It's also interesting, as a *Mass Effect* fan, to see the genesis of that series here. The first *Mass Effect* is basically a refinement of *KOTOR* minus the Star Wars stuff. Flying between planets, chatting with companions aboard the Ebon Hawk and facing tough moral choices in quests, I can't help but think of Commander Shepard and the gang. *KOTOR* is BioWare's first really successful transition from 2D games like *Baldur's Gate* to three dimensions. Although interestingly, the combat is still rooted in Dungeons & Dragons, borrowing its d20 system – although the developer does hide this here more than it does in its Infinity Engine games.

And the good news is, it runs fine on modern PCs. To play in higher resolutions you'll need to do some modding, so check out the game's entry on the PC Gaming Wiki for instructions. It's worth reinstalling, even if you're burned out on Star Wars. *KOTOR* is detached enough to still feel like a fresh take on the material – which is a weird thing to say about a game that came out when George W Bush was president. But with Disney still sticking closely to that familiar pool of characters and events, *KOTOR*'s distance from them is worth celebrating even more. ■

As well as being impressive, large ships are dangerous to fighters, and should be avoided.

FREESPACE 2

Jumping back into the cockpit with the classic space sim. *By Rick Lane*

Released in 1999, *Freespace 2* is generally regarded as one of the best space sims ever made. But it's worth bearing in mind that, for a long time, *Freespace 2* didn't have much competition. In the 2000s, space sims almost disappeared completely, with only a handful of notable titles like *Freelancer*, *X3*, and *EVE Online* appearing through that decade. *Freespace 2* was the last of the great '90s space sims, and there appeared to be little new coming out that could challenge it.

Since 2010, however, the situation has changed. Space sims have seen a welcome resurgence, with major projects like *Elite Dangerous*, *No Man's Sky*, and *Star Wars: Squadrons* careening out of hyperspace alongside a swarm of indie titles like *Evochron Mercenary*, *Everspace*, and *House of the Dying Sun*. Can a 20-year-old space combat simulator really hack it against these newer, glossier, more powerful vessels?

I don't want to spoil the ending, but the answer is a resounding 'yes'. Not only is *Freespace 2* still fantastic, it remains astonishingly fresh.

Playing *Freespace 2* does initially come with a side of narrative whiplash, especially if you haven't played the first game – the somewhat awkwardly titled *Descent: Freespace*. Set 32 years after The Great War depicted by *Descent*, *Freespace 2* drops you smack into the middle of a brewing conflict between a human-alien coalition named the Galactic Terran-Vasudan Alliance, a rebel human splinter-faction called the Neo-Terran Front, and another, much more dangerous alien faction known as the Shivans – the primary antagonists of the first game.

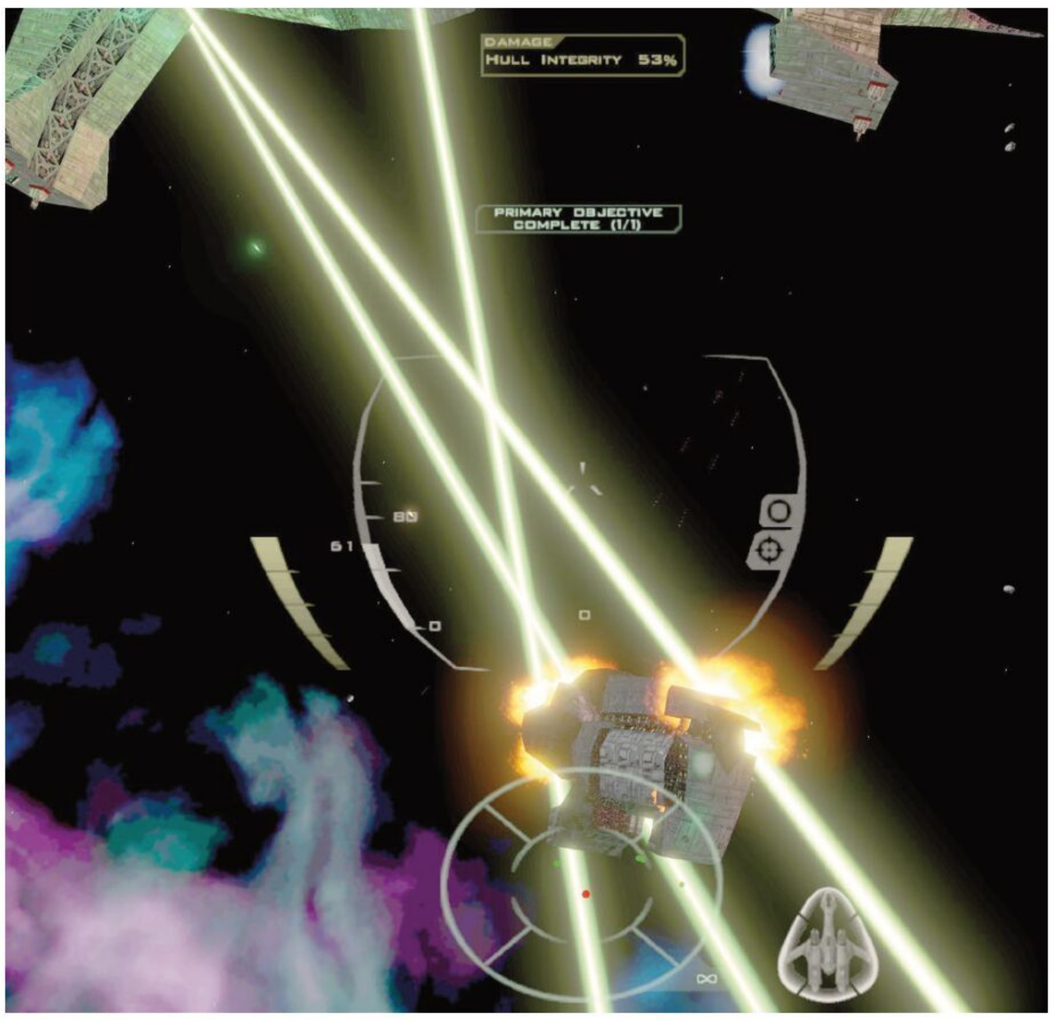
WTF?

There are more acronyms flying around a *Freespace 2* cutscene than in an episode of Line of Duty, though in an age where games tend to guide you by the nose through every plot-point, it's quite thrilling to be unceremoniously dropped into a briefing littered with military technobabble and names of ships and officers you have no frame of reference for. It makes you feel like a rookie pilot, which at the game's outset, is exactly what you are.

Frankly though, the why of the fight doesn't matter much at first. You'll be too preoccupied grappling with how to fight, while cooing at the tremendous spectacle *Freespace 2*'s combat offers. Thanks to a combination of a highly active

NEED TO KNOW

RELEASED 1999	**DEVELOPER** Volition
PUBLISHER Interplay	**LINK** hard-light.net



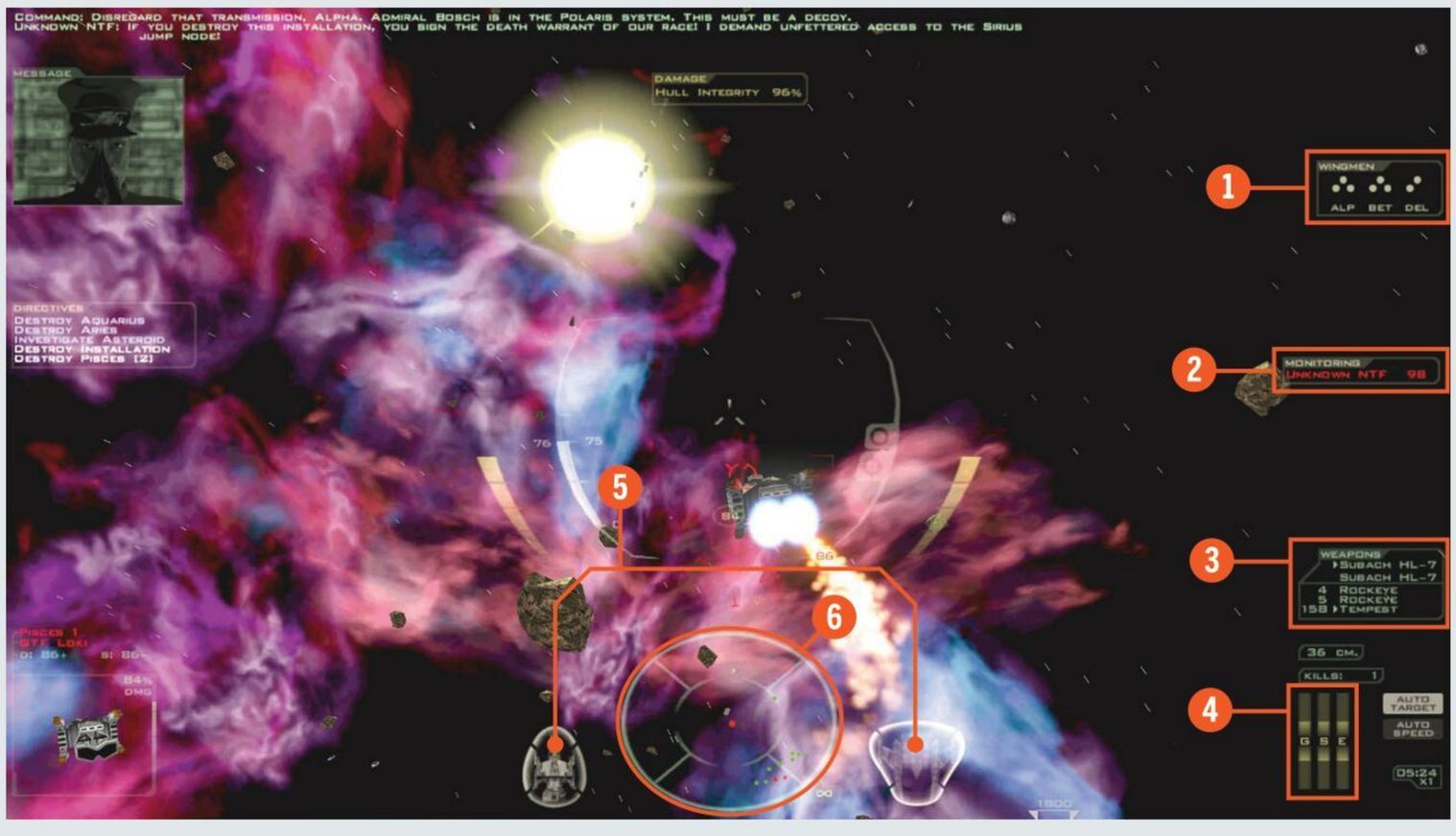
modding community and smart creative decisions of the time, *Freespace 2* has been exceptionally well preserved. The game only looks noticeably old during its few quiet moments, when you've got time to dwell upon the angular spaceships and the painted-on skyboxes.

The moment combat commences, however, *Freespace 2* literally explodes with colour. The pockmarked black of space is suddenly illuminated with motley bands of laser-fire, golden missile-tracers, and the searing green and blue bars of mighty beam weapons from larger ships like frigates and destroyers. Speaking of explosions, *Freespace 2* does those brilliantly too. Damaged ships will trail sparks like clusters of baby stars, before erupting in a bright and soupy fireball. The best moments in *Freespace 2* happen when the largest ships go boom, sending out a massive blue halo as they burst into smithereens.

Sound and scale play equally significant roles in making the game's combat so satisfying. Every weapon in the game's vast arsenal has a palpable weight behind it, whether it's the thud of your lasers or the roar

UNDER THE HUD

There's a lot going on in* Freespace 2*'s HUD. Here's a breakdown



1 WINGMEN
Squadrons' status. White = fine. Red = damaged. Hollow = dead.

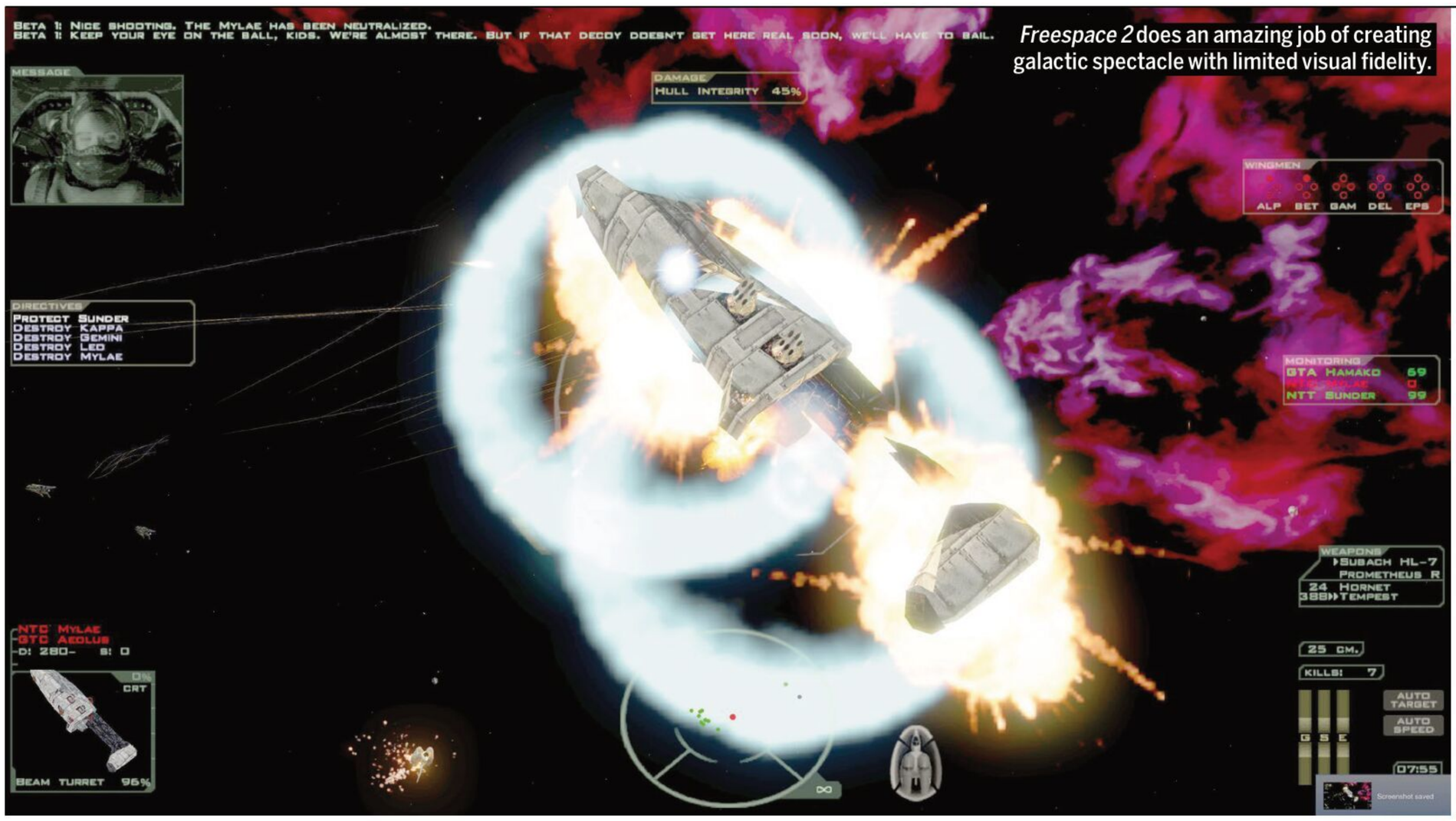
2 MONITORING
Displays the health of the key ships that are taking part in the battle.

3 WEAPONS
Shows the available and selected weapons at your disposal.

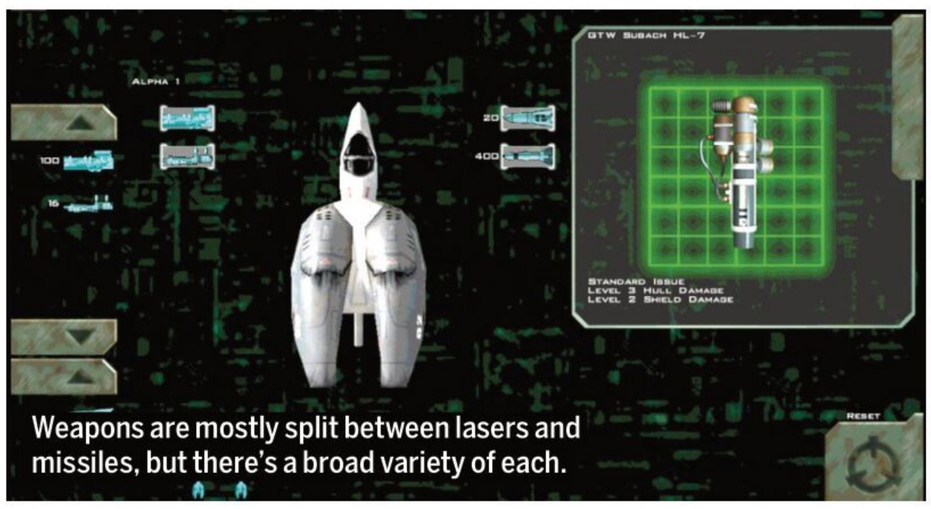
4 GSE
The power level of systems. G = guns. S = shields. E = engine.

5 SHIELDS
Shows the shield status of both your ship (left) and target ship (right).

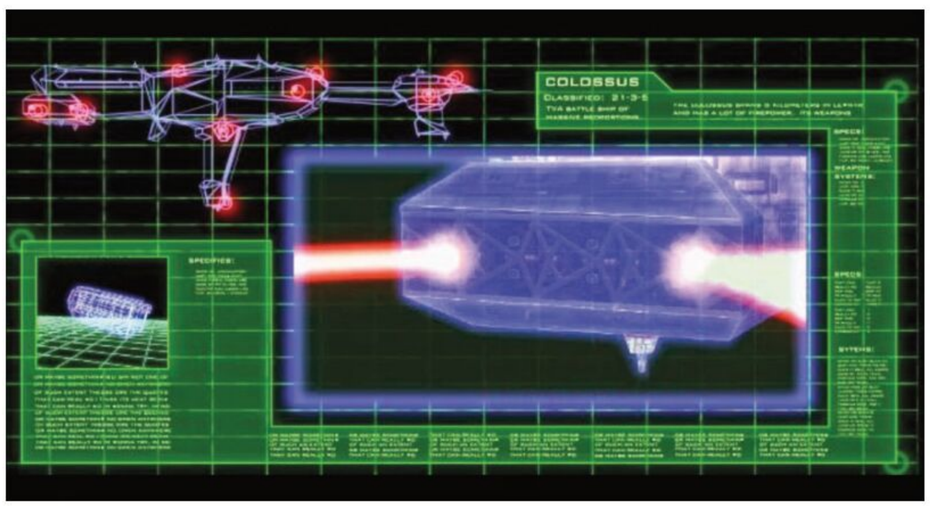
6 MINIMAP
A snapshot of the battle showing enemies and friendly ships.

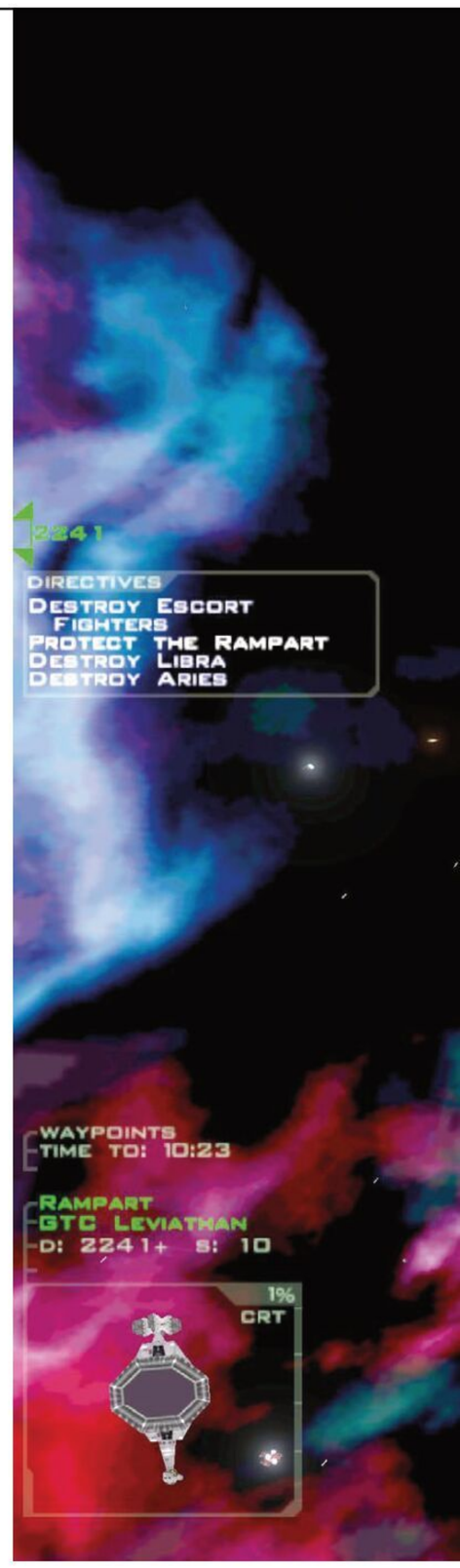


Freespace 2 does an amazing job of creating galactic spectacle with limited visual fidelity.



Weapons are mostly split between lasers and missiles, but there's a broad variety of each.





of your cluster Hornet missiles. And while *Freespace 2*'s ships may lack the sleek lines and chrome plating of *Elite Dangerous*, larger ships like Destroyers and the GTVA's Colossus are still daunting to approach in your tiny, fragile fighter.

Freespace 2's spectacle effectively draws you in, but what keeps you sticking around is the combat simulation itself, as well as the structure *Freespace 2* builds around it. The basics of *Freespace 2*'s ship combat are familiar stuff. Every ship has six degrees of movement, shields, a targeting and tracking system, and fixtures for various weapons like lasers and missiles. But it's the nuance with which *Freespace 2* represents these systems that makes it so interesting to grapple with.

With targeting, for example, you can cycle through targets as you would in any other space sim. But there are also keyboard shortcuts for specifically targeting hostile ships, friendly ships, the ship currently hovering in your crosshairs, and even specific points on larger ships, like turrets or crucial systems. Similarly, your shields can be managed in a range of different ways. You're able to shunt shield power to a specific quadrant, or press Q to equalise shield power across your ship. Even movement has multiple shortcuts, letting you instantly max out your throttle, or press M to match the speed of any ship you've targeted.

COCKPIT STOP

All this is designed to give you the tools you need to deal with whatever scenario *Freespace 2* launches at you. Indeed, the breadth of information you need to retain can be a little daunting, but *Freespace 2* mediates your education through several tutorials in the campaign. Even the first few missions are also designed so you can take a backseat if you need to, letting your AI squadmates do most of the work while you learn how to fight effectively.

Inevitably though, there comes a point where sitting back will simply result in your ship being quickly obliterated. *Freespace 2* can be seriously challenging. It frequently pits you against seemingly overwhelming odds, often tasking you with protecting a station or a convoy with just a few fighters as an entire fleet of enemy vessels slides out of subspace. There were several missions where either my own hull or that of the vessel I was tasked to protect escaped with only a few hitpoints remaining.

This leads onto where *Freespace 2* truly shows its quality – mission structure. Most missions ultimately involve either attacking or defending a target, but *Freespace 2* has a remarkable ability to frame this in ways that make missions thrilling. An early mission sees you trying to stop a rebel cruiser before it jumps into subspace, despite it being too far

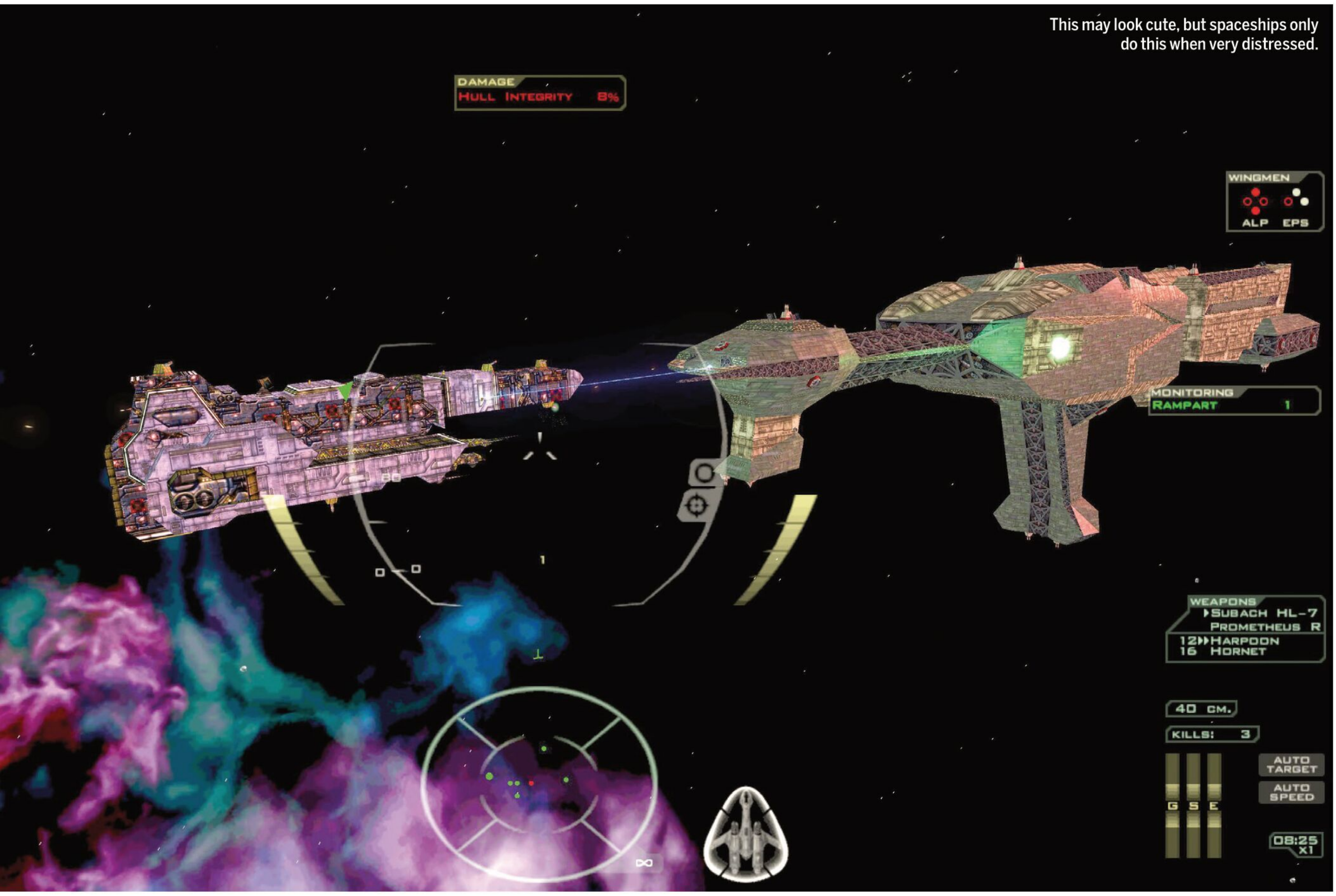
SHIP SHAPE

Just a few of the many different ship types

HERCULES
Class: Heavy Assault fighter
Pros: Extra weapon slots
Cons: Low Manoeuvrability

ULYSSES
Class: Space superiority
Pros: High manoeuvrability
Cons: Low armour

GTF LOKI
Class: Recon
Pros: Balanced outfit
Cons: Only one missile bank



This may look cute, but spaceships only do this when very distressed.

AS THE GAME GOES ON, MISSIONS BECOME EVERMORE INTERESTING

ahead to intercept. As it escapes, your wingmates grumble that command deliberately allowed the ship to flee, before you're forced to deal with an ambush by rebel fighters.

DAREDEVILS IN THE DETAILS

As the game goes on, missions become evermore interesting. In the middle of the first act, your faction unlocks a subspace node to a distant nebula. The following mission sees you exploring its purple haze as part of the Suicide Kings – an outfit of daredevil pilots. In the next mission, you return to the nebula to destroy a vast alien ship known as the Ravanna, blind-firing powerful warheads at it while needled by enemy fighters. *Freespace 2* also has a knack for mid-mission twists – a signal on the radar revealing a rebel cruiser lost in Shivan space, or a massive allied ship emerging from subspace to turn the tide of battle when all hope seemed lost.

Curiously, some of the game's best missions are optional. While the campaign is mostly linear, it offers a brief side-story that sees you go undercover as a rebel pilot. These missions are filled with natty twists and turns, such as your co-agent springing an ambush on a rebel convoy without first warning you, forcing you to suddenly fight the wingmen you were flying alongside mere moments ago. In this way, these missions effectively generate an atmosphere of paranoia, where you're never quite sure what exactly is going to happen, or the extent of the rebels' knowledge about your true identity.

For the most part, *Freespace 2* plays just as well as it did 20 years ago, though there are a few areas where its age is understandably on show. Some of the audio is quite scratchy, particularly cutscenes and briefings. Moreover, the heavy-handed tutorials betray the game's age. If *Freespace 2* was made today, these would be carefully woven into the campaign itself, rather than suddenly pulling you out of the story for a lecture in advanced targeting.

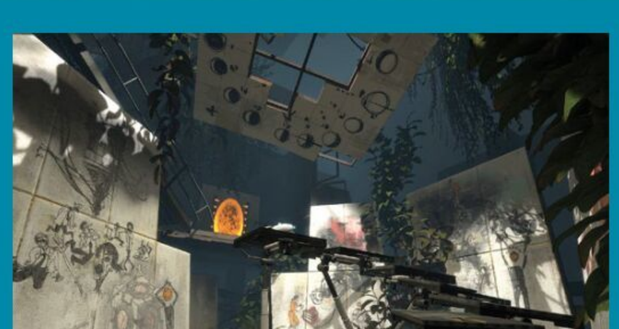
Finally, while *Freespace 2*'s plot is enjoyably twisty, its approach to storytelling is rather cold and impersonal, leaving little room for character development. There is a reason for this – the game wants you to buy into its highly militarised fiction, which is why most of the story is told through briefings with gravelly voiced officers talking in sci-fi jargon. This element succeeds, but the game otherwise fails to imbue much personality into its cast, particularly the player character and their wingmates. Ultimately, while individual missions are excitingly structured, the story lacks the same colour as the brilliant combat.

One final point. It's crucial to note that *Freespace 2*'s state of preservation is owed largely to the community, which has created a huge range of mods, visual enhancements, and other support tools that ensure the game runs well on modern machines. If you plan to play *Freespace 2* yourself, I recommend that you download the Freespace Open Installer. This includes support for higher resolutions alongside a whole bunch of other inbuilt mods like better quality cutscenes. You'll also need to download Java and a separate Windows executable to get it running, but it's worth the effort.

Freespace 2 deserves its reputation as one of the finest space sims around, remaining every bit as thrilling and elegantly crafted as it was back in 1999. Having not played it in years, I wasn't prepared for how fresh, immediate and exciting the experience is, which is a testament to Volition's talent as a studio, and a fine demonstration of how great design can withstand the passage of time. ■

THE SOURCE ENGINE

The beautiful tension of an engine caught between eras. ***By Nat Clayton***



RIGHT: My own maps eventually ditched textures and let the lighting do the talking.

There's a dead end junction, late in *Half-Life 2*'s airboat segment, that's fairly easy to miss. It's nothing special to look at. A concrete run-off with a few shanty houses and a handful of zombies. But this corner, with its distant chirping of crickets and the sunset baking the panelled walls in just the right way, is special enough that I always stop by for a visit when returning to the game. It's a corner that perfectly captures the fleeting, uniquely melancholy beauty of Valve's Source Engine.

The Source Engine, the software that drove all of Valve's games from *Half-Life 2* through *Counter-Strike: Global Offensive*, came at a uniquely transitory moment in game development. It was the mid-2000s, and 3D games were starting to look pretty damn good. Ten years earlier, and games were merely suggesting spaces through blocky corridors. A decade later, and we're looking at games that are near photorealistic.

Source bridged that gap. It's at once the last gasp of things like bsp-based terrain, baked lighting, and the entire field of level design, and a peek at the lush, living words of games to come. Over the past ten years, developers have gotten really, bloody good at wringing spectacular landscapes out of the engine – but they're doing so with a level editor built in 1997, using limitations laid down in 2004.

It's a bizarre tension, but one that gives Source maps a strange, almost haunted feeling. There's an intangible quality to the way Source levels are lit. Sounds all echo just a little more than you think they should. Hop into an empty Garry's Mod map, and the sense of isolation is overbearing.

LEVEL WITH ME

It helps that, by a rough estimate, there are probably 11 thousand billion Source maps floating around the internet right now. If Source is the last gasp of '90s design philosophies, then it's equally the last home for community mapmaking.

Remember mapmaking? Out of the current lineup of competitive shooters, *Counter-Strike: Global Offensive* is the only one that still sports robust level-creation tools. There's a common sentiment among the indie level design community that the field is sort of dead, with modern toolsets ditching efficient design tools in favour of creating more complex, jaw-dropping environments that are harder to tweak on the fly.

Where Unreal and idTech used to sport similar features, the kind of tools that made constructing and reworking arenas frictionless disappeared with Source, and have only really started to make a comeback with... well, Source 2. Source made it really easy to create mods that looked 'professional', without really having to get knee-deep in learning game development.

RESONANCE CASCADE

The Source Engine feels like a snapshot of a singular moment in so many ways. As mentioned, it's a transition between old and new design sensibilities. For the cynical, it's a reminder of the time Valve actually made games. Its modding scene is a throwback to an internet that hadn't yet been consolidated around a handful of websites, a thousand pre-Twitter forums gravitating around their own mods and servers, creating worlds based on their own sensibilities. Source let modders become developers, with the folks behind the biggest mods now among the more beloved indie darlings. Through machinima and Source Filmmaker, Source let amateurs become animators.

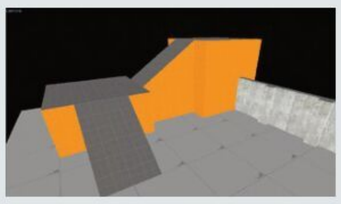
Valve has moved on, and is fully invested in Source 2. The engine behind *Half-Life: Alyx* and *Artifact* is every bit as capable as its predecessor. Maybe even more so. But the internet has moved on, and Source 2 has yet to see the explosion of creativity that defined its predecessor. Maybe it'll get there in time.

SOURCE MADE IT REALLY EASY TO CREATE MODS THAT LOOKED 'PROFESSIONAL'

The Source Engine lives on with Respawn Entertainment. The tech behind *Half-Life 2* is the same tech that powers *Apex Legends*. Sure, Respawn has gutted the thing beyond recognition, crafting worlds the ageing engine could only have dreamt of. But that's only fitting for an engine that itself is duct-taped together from the scraps of *Quake*.

And sometimes, when the low sunlight hits King's Canyon's walls just right, I see the same warm, intangible glow I fell in love with back in City 17's filthiest canal runoff. I see Source, and I know I'm home. ■

ANOMALOUS MATERIALS *Fancy making your own maps?*

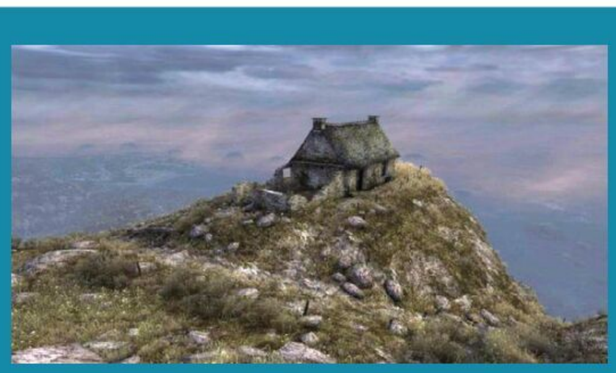


1 BUILD IT
Source (and other engines) use BSP terrain, which basically means dragging out boxes and slapping textures on 'em. Quicker than building bespoke 3D models.

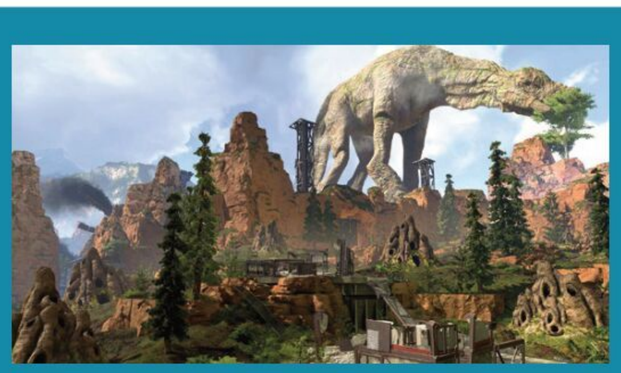
2 SCRIPT IT
Need a loud bang to accompany your jump scare? Setting up a brain-teasing puzzle? Most actions can be easily plugged in using in-editor logic – no code required.

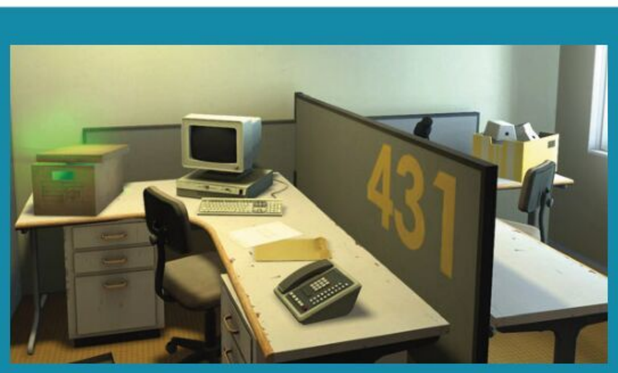
3 LIGHT IT
Now, the fussy part. Every light needs to be hand-placed. Annoyingly you'll have to get your map in-game before previewing the scene, which brings us to...

4 BUILD IT, AGAIN
Go make yourself a cuppa, because now you've got to compile your map. Give it a few minutes, and before you know it you're walking around your own creation.



RIGHT: Squint, and you can kinda see *Apex Legends*' Source engine roots.





THE CITADEL

A tribute to *Mass Effect*'s city-sized space station. ***By Andy Kelly***

LEFT: I'm Commander Shepherd, and this is my favourite city in the galaxy.

RIGHT: The *Legendary Edition* makes the station even prettier.

Everything else aside, *Mass Effect*'s Citadel is just a great piece of science fiction. This colossal 44km long space station was built generations ago – it's presumed by the extinct Prothean race, although no one's really sure. Thousands of years later, it's now populated by dozens of different species, and has become a galactic hub for trade, diplomacy, and, of course, drinking in its many neon-lit bars. It's basically a giant floating space city, with 13 million souls living and working there.

The Citadel is BioWare's take on the O'Neill cylinder, a fanciful space settlement dreamed up by American physicist Gerard K O'Neill. He proposed the idea in his 1976 book The High Frontier: Human Colonies in Space, which features some incredible illustrations.

One famous drawing from O'Neill's book in particular could be concept art for the Presidium, the bustling heart of the Citadel. This is the first area of the station you visit in *Mass Effect*, and it's still an impressive sight. The Presidium is a huge ring with a simulated blue sky, leafy green vegetation, gleaming white architecture, and anti-grav cars zipping past. These visuals, combined with Jack Wall's stirring, atmospheric music, make this one of the most memorable locations in the game.

PROCRASTINATION

When Shepard arrives in the Citadel, there's a lot to do, including formulating a plan to save the galaxy. But that can wait. Before I even think about driving the story forward, I love hanging out in the city, talking to people, and working my way through the selection of sidequests on offer there. The first game's version of the Citadel is composed of two distinct areas: the aforementioned Presidium, where bankers, diplomats, and other high-society types hang out; and the Wards, residential districts where regular citizens tend to spend their time. It's actually a pretty small map, with the illusion of, rather than real, scale, but it works. You forget that everything's happening in the same handful of corridors.

BEFORE DRIVING THE STORY FORWARD, I LOVE HANGING OUT IN THE CITY

As you explore these two very different sides of the Citadel, picking up sidequests and nosing into people's business, you get a sense of what life is like on the station. Few sci-fi games give you this kind of slice of life experience. Shepard settles a dispute between two scientist rivals, deals with an overenthusiastic fan, works with a journalist to expose a corrupt club owner, and other low stakes tasks that add detail to the setting and make it feel like a real, functioning place. And the ambience of the Citadel is so incredibly chill, running around doing these odd jobs never feels like a chore.

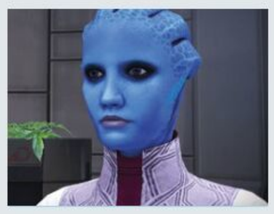
I also love the Keepers. These insect-like creatures can be found all over the Citadel, tinkering with control panels. They seem unaware of their surroundings, and no one really knows where they come from. For as long as the Citadel has existed, they've been scurrying around it, silently repairing things, and keeping the place running. This adds to the mystery of the station's origins, and it's a superb piece of world-building. *Mass Effect* takes a lot of its best ideas from the mature science fiction of the 1960s and '70s, but it has enough of its own personality and imagination not to feel derivative.

The more you play the *Mass Effect* trilogy, the more you learn about the truth of the Citadel, the Keepers, and other elements that are initially enigmatic. But even when you learn about its true purpose, it's still a fascinating setting, and one of the best virtual cities BioWare has ever created – and this is a studio that has created some of the best, from *Baldur's Gate II*'s Athkatla, to *Knights of the Old Republic*'s Ahto City. Exactly what the next *Mass Effect* game will be, or when it'll be set, remains to be seen, but I hope we return to the Citadel in some form. ■

STAR CITIZENS

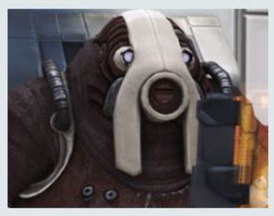
Some of the people you meet on the Citadel

AVINA
An information VI (virtual intelligence) who can fill you in on the history of the Citadel and help you navigate the sprawling station.



SHA'IRA
Also known as the Consort, this influential Asari is a problem solver, therapist, and pretty much anything her clients desire.

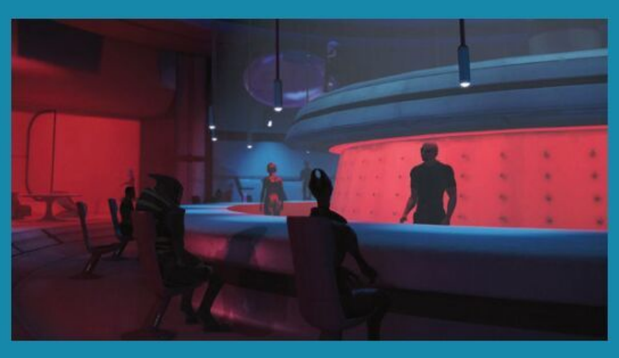
HARKIN
A grouchy officer for C-Sec, the Citadel's police force. Harkin has a bad reputation for roughing up suspects and taking bribes on the side.



BARLA VON
On the surface, a banker. But in actuality, an agent of the Shadow Broker, the galaxy's most powerful and feared dealer of info.

NEED TO KNOW

RELEASE May 28, 2008	**DEVELOPER** BioWare
PUBLISHER Electronic Arts	**LINK** bit.ly/3vYP2hX



LEFT: Apparently people in space love getting drunk as much as people on Earth do.

RIGHT: Views of the larger structure give the place an incredible sense of scale.

HITMAN'S STAGGERING VARIETY OF OBJECTS TO HIT PEOPLE WITH

Household items have so much violent potential. *By James Davenport*

RIGHT: A kettlebell seeks its target.

Here are just a few of the objects you can seriously harm someone with in the recent *Hitman* games: a blueberry muffin, a cannonball, a cheeseburger, a feather duster, a frying pan, a bone (the meat still on), a snow globe, driftwood, a cowboy bust, a bag of sugar, a wet floor notice, an android arm, a dead fish, a didgeridoo, a Maori paddle, and the classic, everlasting brick. Remember, we're just scratching the surface of smack-a-dude tech. When you get to expired-can-of-spaghetti levels of blunt force trauma, you'll know you're playing *Hitman* for real.

I've yet to see what *Hitman 3* adds to the mix, but in catching up on the *Hitman 2* DLC levels before wrapping the trilogy, I fell into an inescapable vortex of desire, the desire to bash people over the head with everything I possibly could. I've gotta smash 'em all, and there are so many good things to smash 'em with.

But let's examine the act of bashing someone over the head with A Thing first. IO figured out how to make it feel good and precise without indulging in wild knockout animations or burdening the player with the need for a perfect setup and execution. When you move to knock someone out with a blunt object, Agent 47 either bops them over the head if they're close, or hits them from across the room with the aim and velocity of an MLB pitcher.

When the rotating aiming reticle pops up and locks onto an enemy's head, so long as the cursor is within a couple feet of their skull, and the arc projects the object's journey – that's the moment *Hitman* hands you a 20 dollar bill and says get yourself a treat, have some fun, I'm just a damn videogame. Agent 47 wouldn't miss, so neither will you. He never smiles either, but the arc every object travels on from 47's abyssal pockets to some dope's dome forms a big grin from some angle. I mean, here's an austere meat machine born to kill pulling a ceramic cowboy bust, a banana, and a pool ball from his pockets and knocking out three trained mercenaries in under two seconds. Watch them as they fall, folding over like parade balloons. It's pure videogame slapstick.

DREAM OBJECTS

Stuff I'd love to maim with

GAMING KEYBOARD
It leaves Alt+F4 imprinted on their forehead.

JAR OF PENNIES
River City Ransom vibes.

AUTOPSY REPORT
The clipboard is super, super heavy.

NOVELTY HULK HANDS
Just imagine 47 saying "Hulk smash".

HITMAN ACTION FIGURE
It's not a toy, dammit!

GAMING PC
Talk about a hard reset.

THEIR OWN FIST
Stop hitting yourself!

A 3D PRINTER
When you need a hammer five hours from now.

AN OSMIUM PELLET
Heavy metal, man.

OBJECTIFICATION

I'm always hoarding objects, walking around with eight gold bars, three wrenches, a couple muffins, and whatever else Agent Roomba hoovers up just in case I need to put a room to sleep with some explosive juggling. I like to imagine Agent 47, total confidence and assertion in his perfectly measured gait, walking around a secret island resort for rich criminals with bananas, ancient burial knives, and Fabergé eggs spilling out of his cargo shorts. *Well hello, Agent 47. Is that an auto shop in your pants or are you just happy to see me?* There's no avoiding the physical comedy meta either: your most essential tools often double as melee weapons. They're great panic buttons, especially if someone catches you loosening a valve with one. But I look at wrenches differently now, and that's a problem. I perceive all plumbers as threats.

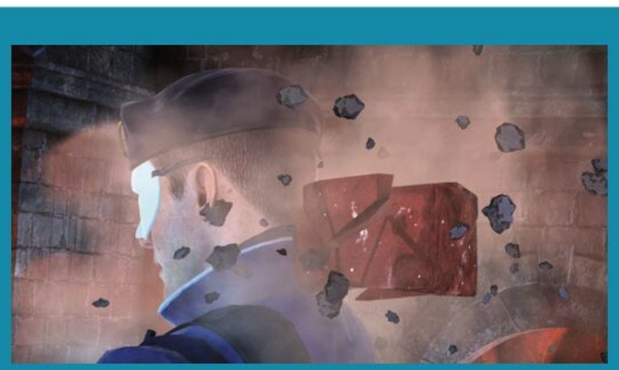
Even if most of *Hitman*'s blunt objects function similarly, they each carry immense thematic weight. There's not a single target that can avoid my desire to knock them out with something perfectly ironic, which has evolved into its own list of personal, vindictive objectives for me. Sometimes you'll get a nod in the massive list of challenges associated with each mission, but I love how I'm intrinsically compelled to bash my targets over the head with something thematically appropriate, even without the guiding hand of an overt mission objective. I took out Milton-Fitzpatrick Bank CEO Athena Savalas with a gold bar, of course. Druglord Rico Delgado went down with a cocaine brick. Each implement must be joined with the head of a given monster with the utmost care and consideration (for how much it's going to make you laugh).

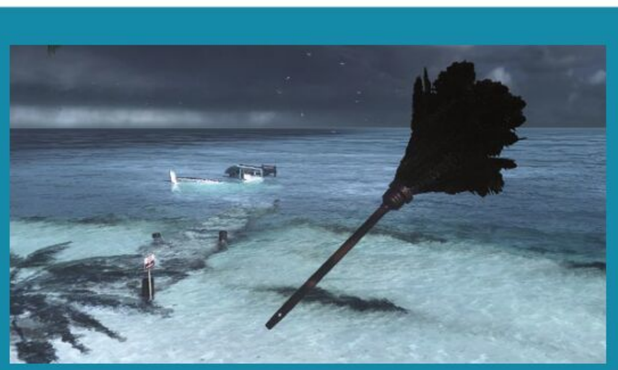
I LOOK AT WRENCHES DIFFERENTLY NOW. I PERCEIVE ALL PLUMBERS AS THREATS

Hitman's head-bashing mechanics aren't complex. They're nothing new in videogames, violent verbs from the earliest days of PC gaming. But they're a perfect example of how visual and thematic variety can give the impression of many possibilities, even if the only possibilities are to concuss professional bodyguards and elite criminals. I can't wait to see what everyday objects I can take out the worst people alive with when I finally get started with *Hitman 3*. ■

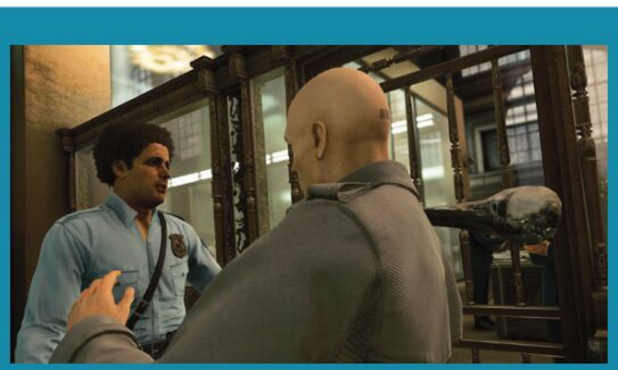
NEED TO KNOW

RELEASED November 2018	**EXPECT TO PAY** £47.50
OUR REVIEW 84%	**LINK** hitman.com





RIGHT: The face of a man that knows a fish is coming.



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